

3.6 Fishery Resources

Fishery resources include fish populations, their habitats, and the harvest of those populations. This section discusses the existing environment of the Trinity River basin regionally and in a site-specific context with regard to native anadromous and resident fish and non-native fish. Information on other biological resources is provided in Section 3.7, Vegetation, Wildlife, and Wetlands.

The USFWS has determined that the lack of sufficient rearing habitat for juvenile salmonids is likely a primary factor in limiting the recovery of salmonid populations in the Trinity River (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999). The Proposed Action is specifically designed to increase the abundance of rearing habitat for Trinity River juvenile salmonids by reconnecting the river with its floodplain.

3.6.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Setting

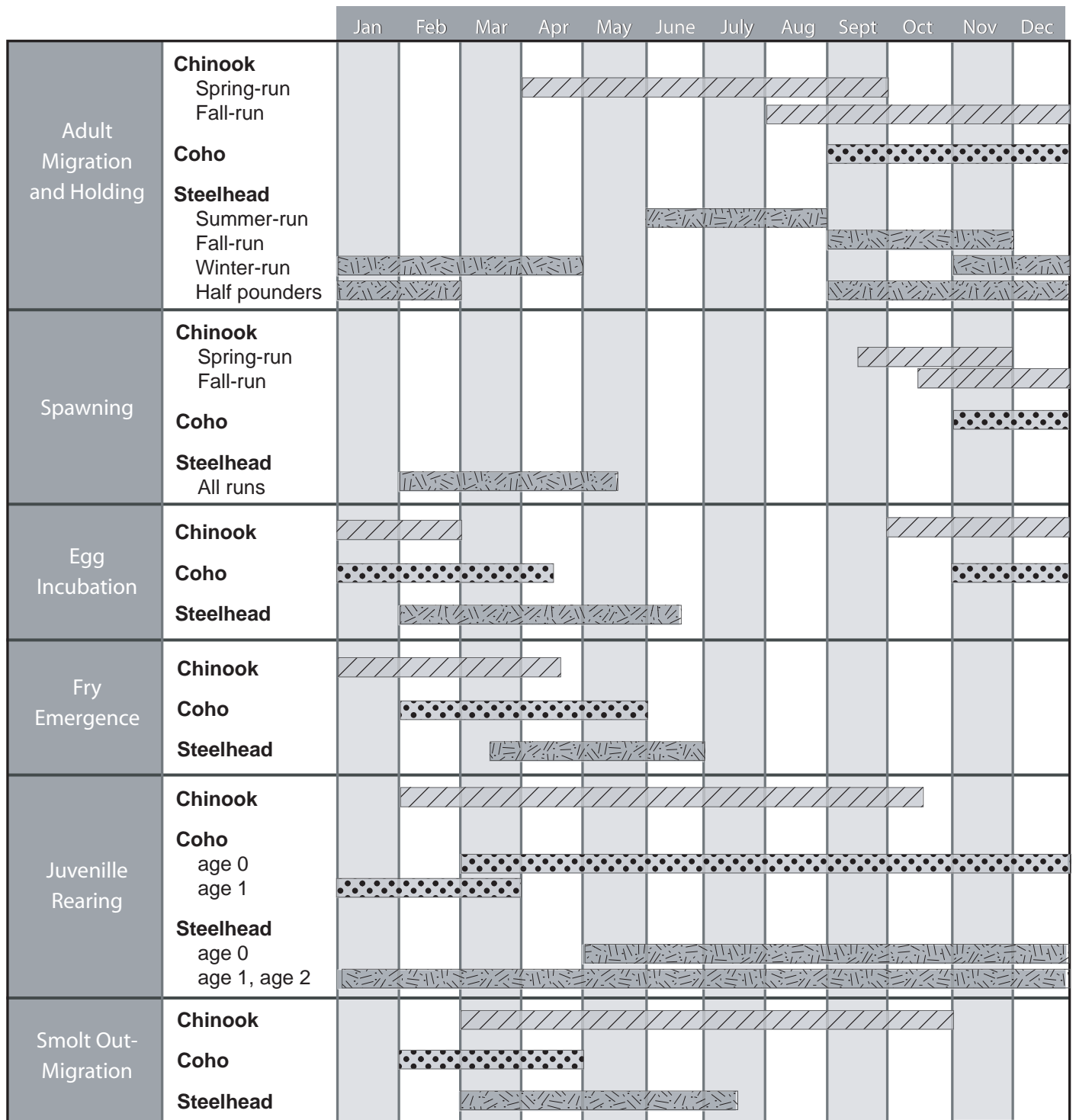
Native Anadromous Fish Species

The native anadromous salmonid species of interest in the mainstem Trinity River and its tributaries are Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), and steelhead (*Oncorhynchus mykiss irideus*). Of the three species, there are two spawning races of Chinook salmon (spring- and fall-run) and two spawning races of steelhead (winter- and summer-run). The life histories and fresh water habitat requirements of these species and their distinct spawning populations are described in Appendix H.

All anadromous species begin their life in fresh water, migrate to the ocean to rear and mature, and return to spawn in fresh water. Although the three species have generally similar life histories, they differ in the time of year they migrate and spawn, as well as when egg incubation typically occurs (Figure 3.6-1).

Adequate flows, temperatures, water depths, and velocities; appropriate spawning and rearing substrates (e.g., riverbed gravels); and availability of instream cover and food are critical for the production of all anadromous salmonids. Spring-run Chinook salmon and summer-run steelhead also need long-term adult holding habitat in which pool size and depth, temperature, cover, and proximity to spawning gravel are important requirements. Newly emerged fry and juveniles of all species require rearing habitat with low velocities, open cobble substrate, and cool water temperatures. Emigration of smolts to the ocean and the immigration of spawning adults require adequately timed flows with the appropriate temperature, depth, and velocity.

Native non-salmonid anadromous species that inhabit the Trinity River basin include green sturgeon (*Acipenser medirostris*), white sturgeon (*Acipenser transmontanus*), and Pacific lamprey (*Lampetra tridentata*). These fish spend their early life stages in fresh water, migrate to the ocean for maturation, and return to their natal streams to spawn. Appendix I provides additional information on these species and their life stages. Information on native non-salmonid anadromous species residing in the Trinity River basin is very limited.



Indian Creek Rehabilitation Site: Trinity River Mile 93.7 to 96.5 

Figure 3.6-1
Salmonid Growth and Migration Patterns

However, the Klamath/Trinity River basin is known to contain the largest spawning population of green sturgeon in California (Moyle 2002). In contrast, only a small run of white sturgeon is thought to occur.

Trinity River Restoration Program Goals

The 1983 EIS for the Trinity River Basin Fish and Wildlife Management Program (U.S. Fish and Wildlife Service 1983) documented the in-river spawner escapement goals and the Trinity River Salmon and Steelhead Hatchery (TRSSH) production goals developed by the CDFG. These spawner escapement goals were subsequently adopted by the TRRP. The in-river goals represent the total number of naturally produced adult spawners (excluding jacks) for the Trinity River basin below Lewiston Dam and exclude fish caught by the fisheries (Table 3.6-1). The hatchery goals represent numbers of adult fish needed by the hatchery, exclusive of fisheries for Chinook and coho salmon. An undefined in-river harvest is included in the restoration program goals for steelhead.

TABLE 3.6-1

TRINITY RIVER RESTORATION PROGRAM SPAWNER ESCAPEMENT GOALS{ TC
"Table 3.6-1 Trinity River Restoration Program Spawner
Escapement Goals" \f B \l "1" }

Species	In-river Spawner Goals	Hatchery Goals	Total
Fall-run Chinook	62,000	9,000	71,000
Spring-run Chinook	6,000	3,000	9,000
Coho	1,400	2,100	3,500
Steelhead	40,000	10,000	50,000

Source: U.S. Fish and Wildlife Service et al. 2000

In-river spawner escapement is the number of fish returning to spawning grounds, which consists of two subgroups: naturally produced fish and hatchery-produced fish. However, hatchery-produced fish are not considered to contribute toward the in-river spawner escapement goals of the TRRP, although their offspring do (i.e., if hatchery-produced fish spawn in-river and their offspring survive to return to spawn, these offspring are naturally produced by definition). The best available data indicate that large numbers of hatchery-produced fish spawn in-river. Typically, more fish spawn in-river than are spawned at the hatchery, and fewer emergent fry survive to return as adults. Assuming that hatchery- and naturally produced fish are subject to the same environmental conditions after the hatchery releases its fish (typically as smolts), the relatively low returns of naturally produced fish are indicative of lower survival rates of early fresh water life stages (i.e., eggs, fry, and/or juvenile fish), compared to hatchery-reared fish. This indicates that the quality or availability of rearing habitat is limiting the population.

Fall-Run Chinook Salmon Population

Average in-river escapement of naturally produced fish (Table 3.6-2) was calculated by averaging CDFG's annual in-river spawner escapement above Willow Creek weir (with the exception of spring-run Chinook salmon that were estimated above Junction City weir) for the years of given data (excluding grilse) multiplied by the percentage of that population estimated to be "natural spawners" reported in the Trinity River Mainstem Fishery Restoration EIS/EIR (U.S. Fish and Wildlife Service et al. 2000).

Although annual pre-dam escapement data are sporadic, estimates of the number of fall-run Chinook salmon adults in the Trinity River prior to 1964 above the North Fork ranged from 19,000 to 75,600 and averaged 45,600 for the 5 years of available data. Comparisons between pre- and post-dam averages are difficult because (1) few pre-dam estimates exist; (2) pre-dam estimates typically represent fish spawning in the river above the North Fork, while post-dam estimates are above Willow Creek; and (3) post-dam estimates are only for the river below Lewiston Dam and are confounded by large numbers of hatchery-produced fish that spawn in natural areas (recent changes have been enacted to reduce competition of hatchery-produced fish with naturally produced spawners). Comparisons between pre-dam escapements and the TRRP in-river spawner escapement goals are not equitable because the in-river goals represent the numbers of fish that could be produced in the entire Trinity River basin below Lewiston Dam once successful restoration is completed, whereas the pre-dam numbers are sporadic and limited to the Trinity River above the North Fork.

TABLE 3.6-2
COMPARISON OF TRRP IN-RIVER SPAWNER ESCAPEMENT GOALS TO AVERAGE NUMBERS OF
NATURALLY PRODUCED FISH{ TC "Table 3.6-2Comparison of TRRP In-river Spawner Escapement
Goals to Average Numbers of Naturally Produced Fish" \f B \l "1" }

Species	TRRP In-river Spawner Escapement Goals	Average In-river Escapement of Naturally Produced Fish	Years of Available Data	Percent of TRRP Goal Met
Fall-run Chinook	62,000	11,900	1982–2005	19
Spring-run Chinook	6,000	4,193	1982–2003	70
Coho	1,400	285	1982–2003	20
Steelhead	40,000	2,710	1992–1996/ 2002–2003	7

Source: U.S. Fish and Wildlife Service et al. 2000, Sinnen 2005, and California Department of Fish and Game, unpublished data.

Yearly estimates of fall-run Chinook salmon runs in the Trinity River basin have been made by CDFG since 1978 as a part of the Klamath Basin Fall Chinook Salmon Spawning Escapement Estimate. Post-dam in-river spawner escapement estimates for the Trinity River basin upstream of Willow Creek weir from 1982–1997 averaged 34,670 fall Chinook salmon, of which an average of 22,440 fish are hatchery-produced fish. Naturally produced fish have ranged from 10 to 94 percent of in-river spawner escapements, with an average of 47 percent. Applying this proportion to escapement surveys from 1982–2005, the Trinity River below Lewiston produced an average of 11,900 naturally produced fall-run Chinook spawners, which is approximately 19 percent of the TRRP goal of 62,000 naturally produced fall-run Chinook salmon (Table 3.6-2).

In September 2002, a large fish die-off occurred in the Klamath River. A conservative estimate of the total number of fish that died during the incident is 34,056, of which approximately 98.4 percent were adult anadromous salmonids. Out of the 33,527 anadromous salmonids estimated to have succumbed during this event, 97.1 percent were fall-run Chinook salmon. The Klamath River Technical Advisory Team (KRTAT) estimated that 21.7 percent of the Chinook were of hatchery origin, with 12.7 percent being of Trinity River Hatchery origin (U.S. Fish and Wildlife Service 2003). The fish die-off

disproportionately affected fall-run Chinook salmon, resulting in subsequent reduced production (CDFG 2004).

Spring-Run Chinook Salmon Populations

Fisheries investigations conducted from 1942 through 1946, which was prior to the construction of the Trinity and Lewiston dams, identified spring-run Chinook salmon populations in the Trinity River above the North Fork Trinity River confluence (Moffett and Smith 1950). In 1955, an in-river spawner escapement estimate of 3,000 spring-run Chinook salmon upstream of Lewiston was reported by CDFG (U.S. Fish and Wildlife Service et al. 2000). Escapement surveys for the years 1982 through 2000 (excluding 1983 and 1995 because surveys were not conducted in those years) indicate that an average of 65 percent of the in-river spawner escapement of Trinity River spring-run Chinook salmon was hatchery produced (Figure 3.6-2). Conversely, only 35 percent were naturally produced. For the years 1982-2003 (excluding 1983 and 1995 as noted above), the Trinity River below Lewiston Dam produced an average of 4,193 spring-run Chinook salmon.

Coho Salmon Populations

Trinity River coho salmon populations were historically smaller than Chinook salmon populations. Pre-dam estimates for coho salmon spawning above Lewiston were 5,000 fish (U.S. Fish and Wildlife Service et al. 2000). Access to high-quality habitat with year-round cold, clear flows for coho salmon was blocked by construction of the TRD (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999). Because coho salmon generally rear for at least one full year in freshwater, seasonally warm water temperatures occurring in much of the mainstem Trinity River during summer prior to TRD construction limited mainstem coho production in downstream reaches (Moffett and Smith 1950). Total run size for Trinity River coho salmon below Lewiston Dam from 1973 through 1980 averaged 3,300 adults (U.S. Fish and Wildlife Service et al. 2000). This estimate includes hatchery production. The most recent estimates for coho salmon spawning in the Trinity River upstream of the Willow Creek weir (1991-1995) indicate that naturally produced coho salmon average 200 fish, ranging from 0 to 14 percent of the total annual escapement (an annual average of 3 percent). Current estimates for coho salmon spawning in the Trinity River upstream of the Willow Creek weir (1982-2003) indicate that naturally produced coho salmon average about 285 fish, which is approximately 20 percent of the TRRP goal of 1,400 (Table 3.6-2).

The majority of coho salmon spawning in the Trinity River are produced by the hatchery, and, based on the levels of in-river naturally-produced coho salmon, NMFS has concluded that (1) current coho salmon runs are largely composed of hatchery-produced adults; (2) the remaining naturally produced stocks are, and have been, heavily influenced by hatcheries (such as from occasional inter-basin stock transfers), and virtually all of the naturally spawning coho salmon in the Trinity River, particularly, are first generation hatchery fish; and (3) the remaining natural coho salmon populations in the Klamath/Trinity River system are likely incapable of sustaining themselves (National Marine Fisheries Service 1997).

Between 1997 and 2002, hatchery fish constituted an estimated 89 percent to 97 percent of the fish (adults plus grilse) returning to the Willow Creek weir in the lower Trinity River (Sinnen 2005).

Outmigrant trapping conducted on the lower Trinity River indicates that marked TRH fish made up 91 percent, 97 percent, and 65 percent of the catch in years 1998, 1999, and 2000, respectively (Yurok Tribal Fisheries Program 2002). Additionally, it appears that a significant fraction of the naturally produced fish is likely the progeny of hatchery strays.

By subtracting the number of hatchery and naturally produced fish returning to TRH from counts at Willow Creek weir, Sinnen (2002) estimated that hatchery fish made up between 76 percent and 96 percent of fish that spawned within the Trinity River system upstream of the weir from 1997 to 2002. The lack of natural production within the Trinity Basin, however, remains a significant concern (Good, R.S. Waples, and Adams 2005).

NMFS' updated status review of federally listed west coast salmon and steelhead concluded that none of the new data reviewed contradict conclusions that the Biological Review Team reached previously in 1995 and 1997. Coho salmon populations continued to be depressed relative to historical numbers, and strong indications exist that breeding groups have been lost from a significant percentage of streams within their historical range (Good, R.S. Waples, and Adams 2005).

Since 2000, however, run size estimates for coho salmon in the Trinity River have increased in comparison to depressed estimates through the 1990s. Run size estimates for Trinity River coho salmon upstream of Willow Creek weir were 1.7 times the long-term average of 16,977 (1977-2003) in 2003 (Sinnen 2005). Additionally, average run-size estimates for Trinity River coho salmon between 2000 and 2003 are more than double what they were for the previous 10-year period. Recent increases in coho salmon populations can be attributed to a number of factors, including, but not limited to, favorable ocean conditions, decreased commercial catch, recent water years with average to above average rainfall, and recent habitat improvements and protection.

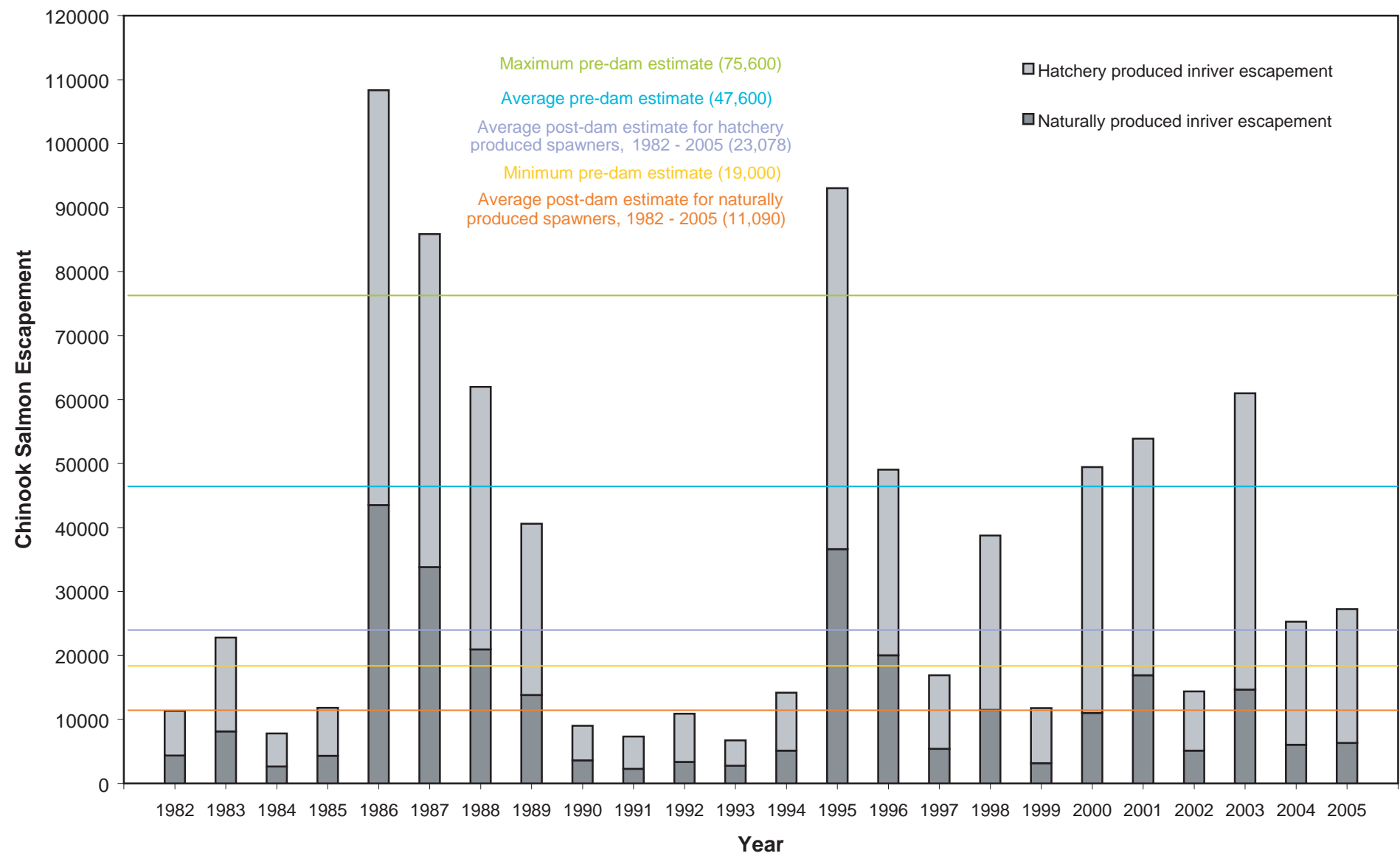
Coho salmon were also affected by the Klamath fish die-off in 2002, but not nearly to the extent of Chinook salmon. One percent of the adult anadromous salmonids that died in the course of the die-off were coho salmon. Of that one percent, approximately 92 percent were of Trinity River Hatchery origin (U.S. Fish and Wildlife Service 2003).

Steelhead

Adult summer-run steelhead hold primarily in the headwaters of mainstem Trinity tributaries during the summer months and spawn during the following late winter/early spring. Some Trinity River steelhead return to the river 4 to 6 months after first emigrating to the ocean. Upon their return, these fish, known as "half-pounders," feed in the river but do not spawn. They subsequently return to the ocean before returning to spawn. When in the "half-pounder" phase, these fish are not counted as part of the escapement, but they are important to the sport fishery.

Pre-dam winter-run steelhead spawner escapements in the Trinity River and its tributaries upstream of Lewiston have been estimated to range from 6,900 to 24,000 adults. From 1992 through 1996 and again for years 2002 and 2003, the California Department of Fish and Game estimated run sizes for wild and hatchery-produced steelhead upstream of Willow Creek weir. The estimated total steelhead escapement of the naturally produced fall/early-winter portion of the winter run upstream of the Willow Creek weir

averaged 2,710 fish (surveys from fall and early winter period only). This average represents approximately 7 percent of the TRRP in-river spawner escapement goal of 40,000-adult steelhead (Table 3.6-2). Estimates for the remaining winter portion of the escapement are unavailable because winter river flows render fish-counting weirs inoperable.



Indian Creek Rehabilitation Site: Trinity River Mile 93.7 to 96.5

Figure 3.6-2
Post-TRD Fall-run Chinook Spawner Escapements
(Source: USFWS et al. 2001; CDFG unpublished data)

Pre-dam summer-run steelhead spawner escapements for the Trinity River upstream of Lewiston were estimated to average 8,000 adults annually. Recent (1985–2002) post-dam CDFG/USFS estimates have ranged from 20 to 2,575 adult summer-run steelhead returning to the mainstem Trinity River and tributaries (California Department of Fish and Game 1997, unpublished data; U.S. Forest Service 2002, unpublished data). The TRRP escapement goals do not establish specific targets for summer-run steelhead in the Trinity River, nor does the TRSSH mitigate specifically for summer-run steelhead.

Trinity River Salmon and Steelhead Hatchery

The TRSSH is operated by CDFG and funded by Reclamation to mitigate for the loss of salmonid production above Lewiston Dam resulting from the TRD. Concerns regarding the potential impacts of hatchery operations on naturally produced populations of the Klamath River basin (including the Trinity River) prompted the CDFG to revise hatchery operations in 1996 to minimize future impacts. Additionally, further review of hatchery operations conducted during 1999 and 2000 resulted in recommendations for (1) periodic evaluation of coho salmon production levels required to support recovery of Southern Oregon/Northern California Coast Evolutionarily Significant Unit (SONCC ESU) coho salmon, and (2) evaluation of spawning and brood stock selection practices for maintaining genetic separation of spring- and fall-run Chinook salmon (California Department of Fish and Game and National Marine Fisheries Service 2001).

Fish Harvest

The harvest of Klamath River basin (including the Trinity River basin) fall-run Chinook salmon is managed jointly by the CDFG, Oregon Department of Fish and Wildlife, California Fish and Game Commission, Yurok Tribe, HVT, NMFS, and U.S. Bureau of Indian Affairs (BIA). The Pacific Fishery Management Council (PFMC) and the Klamath Fishery Management Council (KFMC) are allocation forums for the ocean and ocean/in-river fisheries, respectively. The mixed-stock ocean population is harvested by commercial and sport fisheries and the in-river population is harvested by tribal (ceremonial, subsistence, and commercial) and sport fisheries. Chinook salmon harvest (both fall-run and spring-run) includes both naturally produced and hatchery-produced fish. Commercial and sport harvest of coho salmon has been incrementally restricted in California ocean and inland waters since 1994, resulting in statewide harvest prohibitions within the last 5 years, including barbless hooks and “catch and release only.” The steelhead is rarely caught in the ocean commercial and sport fisheries, but is harvested by the in-river tribal and sport fisheries. Historically, Klamath/Trinity River Chinook and coho salmon populations have been harvested in the ocean from Santa Barbara County, California, to the Oregon/Washington border. Ocean harvest of naturally-produced salmon may have been sufficient in the late 1970s to cause declines in Klamath River basin (including Trinity River) populations, but, based on the best available data, fall-run Chinook salmon harvest management restrictions implemented since 1986 have decreased harvest impacts to levels believed to be sustainable.

Habitat Conditions

Construction and operation of the TRD, combined with watershed erosion, large-scale gold dredging, and other human-caused disturbances, have resulted in major changes in habitat conditions in the Trinity River. Factors that have resulted in adverse effects on fish habitat include

- obstruction to river reaches upstream of the TRD (Lewiston Dam);
- changes to quantity and timing of flows;
- changes in channel geomorphology;
- changes in substrate composition caused by the addition of fine sediments and restriction of gravel recruitment; and
- changes in water temperature.

These factors are addressed in other sections of this EA/DEIR, specifically Section 3.3, Geology, Fluvial Geomorphology, and Soils; Section 3.4, Water Resources; and Section 3.5, Water Quality. The relationship between these factors and fish are summarized in the following paragraphs.

The TRD dams blocked access to 59 miles of Chinook salmon habitat, 109 miles of steelhead habitat, and an undetermined amount of coho salmon habitat (U.S. Fish and Wildlife Service 1994). Much of this habitat is thought to have been prime spawning and rearing habitat. In the case of the Chinook salmon, it represented about 50 percent of the suitable spawning habitat in the upper Trinity River basin. As early as 1980, the overall decline in spawning habitat was estimated at 80 to 90 percent (U.S. Fish and Wildlife Service 1980). Furthermore, the blocking of salmon access to upstream reaches greatly reduced the diversity of habitats available to salmon in the Trinity River.

For the first 21 years of TRD operations (1964 to 1985), Lewiston Dam releases to the Trinity River averaged only 21 percent of the natural river inflow. The reduction in flows led to a reduction in habitat and declining quality in remaining habitat. For example, spawning habitat losses in the mainstem Trinity River below the Grass Valley Creek confluence have been estimated to be 80 percent in the first 2 miles and up to 50 percent overall in the 6 miles downstream of that confluence (U.S. Fish and Wildlife Service 1994).

The altered patterns of fluvial geomorphic processes in the upper Trinity River have resulted in a reduction in the number of alternate gravel bar sequences with a resultant change in substrate quality. Important salmonid habitats associated with alternate bars include pools that provide cover from predators and cool resting places for juveniles and adults; gravelly riffles where adults typically spawn; open gravel/cobble bars that create shallow, low-velocity zones important for emerging fry; and slack-water habitats for rearing juveniles.

Changes in substrate composition occur in conjunction with upland and riverine processes. The construction and operation of the TRD has modified the sediment regime of the Trinity River below Lewiston Dam. Fine sediment fills in spaces between gravels and cobbles, which impedes water percolation through the river substrates, degrading and reducing available spawning habitats. Sedimentation of spawning areas can impede intragravel flow (which is important for delivering oxygen and carrying away metabolic waste products) to incubating eggs, as well as create an impenetrable barrier that prevents the emergence of salmon sac-fry from their gravel nest. Accumulation of fine sediments can also decrease the amount of space between gravel and cobble, thereby decreasing the amount of available habitat for over wintering juvenile coho salmon and steelhead that “burrow” into the substrate.

Sedimentation may also decrease aquatic invertebrate production and diversity, thereby limiting a primary food source for juvenile salmonids.

The thermal environment of the Trinity River has also changed as a combined result of the construction and operation of the TRD and the subsequently altered geomorphic patterns of the river downstream. The dams blocked access to the upstream river reaches that are dominated by snowmelt runoff and remain cool throughout the year. Prior to the dam, these areas provided important juvenile rearing and adult holding habitats for salmonids when the majority of the lower mainstem habitats (i.e., below Lewiston Dam) had likely become too warm. The upstream tributaries contributed snowmelt runoff and cool temperatures throughout the spring and early summer that aided smolt emigration through much of the mainstem. Because the upper river's high-elevation habitats are now blocked by the TRD and much of the snowmelt is retained in the TRD reservoirs, it is necessary to maintain artificially cooler temperatures below the dam than existed prior to the dam. In other words, the mainstem below the dam must now function thermally like the upstream reaches and tributaries for anadromous salmonids.

Habitat Restoration Projects

Since the early 1980s, the Trinity River Basin Fish and Wildlife Restoration Program has conducted a variety of restoration activities in the mainstem Trinity River and its tributaries. These activities include watershed rehabilitation and habitat enhancement work within the tributaries, and dam construction and channel dredging in Grass Valley Creek to decrease the amount of fine sediment entering the mainstem Trinity River. Restoration activities in the mainstem Trinity River have included spawning gravel supplementation, pool dredging to deepen these habitats and remove fine sediment from the river channel, and construction of several channel rehabilitation projects (side channels and bank rehabilitation of point bars). In late fall 2005, the TRRP completed the Hocker Flat demonstration project, which was the first mechanical channel rehabilitation project stemming from the TRRP ROD. Currently, the TRRP is finishing environmental compliance, permitting, and contracting for the Canyon Creek Suite of Rehabilitation Sites (which includes the sites named Valdor Gulch, Pear Tree Gulch, Elkhorn, and Conner Creek), with construction slated to begin during summer 2006.

From 1990 through 1993, the Trinity River Basin Fish and Wildlife Restoration Program constructed 27 channel rehabilitation projects on the mainstem Trinity River between Lewiston Dam and the North Fork: eighteen side-channel projects and nine bank rehabilitation projects (also known as feathered-edge projects). Monitoring of the previous channel rehabilitation projects has documented Chinook salmon spawning within the constructed side-channels and along some "feathered-edge" sites (U.S. Fish and Wildlife Service unpublished data; Chamberlain, pers. comm. 2004). The nine bank rehabilitation projects between Lewiston Dam and the North Fork were constructed by physically removing vegetated sand berms along the bank to restore the channel to a "pre-dam configuration." Channel rehabilitation sites are significantly wider and shallower than corresponding control sites at intermediate and high flows. An evaluation of the monitoring results associated with early restoration efforts concluded that *"when properly constructed, bank rehabilitation can effectively increase the amount of salmonid fry rearing habitat in the Trinity River"* (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999).

Resident Native and Non-Native Fish Species

Resident native fish species found in the Trinity River basin include game fish such as rainbow trout (*Oncorhynchus mykiss*) and non-game fish such as speckled dace (*Rhinichthys osculus*), Klamath smallscale sucker (*Catostomus rimiculus*), three-spined stickleback (*Gasterosteus aculeatus*), coast range sculpin (*Cottus aleuticus*), and marbled sculpin (*Cottus klamathensis*). The abundance of resident native species and the factors affecting their abundance within the basin are not well understood; however, all these species evolved and existed in the pre-dam Trinity River and are presumably adapted to those conditions.

Non-native fish species found in the Trinity and Klamath River basins include striped bass (*Morone saxatilis*), American shad (*Alosa sapidissima*), brown bullhead (*Ameiurus nebulosus*), green sunfish (*Lepomis cyanellus*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*) (USFWS unpublished data). Striped bass have only recently been reported to occur in the Trinity and Klamath River basins, and reports of their occurrence are rare. American shad are known to occur in the lowermost portions of the Trinity River basin, but are primarily found in the lower Klamath River basin. Anadromous brown trout were propagated in the TRSSH until 1977, when this practice was discontinued because of the small numbers and the lack of anadromous characteristics of fish entering the hatchery. Currently, brown trout are largely limited to the upper portions of the river, although some brown trout exhibit anadromous characteristics. Brook trout provide a significant sport fishery in the tributary streams and high-elevation lakes of the Trinity River basin. Its life cycle and habitat requirements are similar to those of brown trout.

The structure and abundance of populations of these species in the Trinity and lower Klamath River basins are unknown. Factors that affect their abundance in the Trinity and lower Klamath River basins have not been studied and also remain unknown.

Special-Status Fish Species

For the purposes of this evaluation, special-status fish species include species that are (1) listed as threatened or endangered by the state or federal governments under the ESA or the CESA; or (2) are proposed or petitioned for federal listing as threatened or endangered; and/or (3) are state or federal candidates for listing as threatened or endangered. “Other” special-status fish species are identified by the USFWS as Species of Concern and/or are identified by CDFG as Species of Special Concern and/or California Fully Protected Species. A list of special-status fish species that were considered during the environmental analysis is included in Appendix I. This list was compiled by performing a search of the California Natural Diversity Database (CNDDB); informal consultations with the CDFG, USFWS, and NMFS; and a review of applicable biological literature.

The SONCC ESU of coho salmon was listed as threatened pursuant to the federal ESA on April 25, 1997. This listing includes coho from the Trinity River and Klamath River basins. A review of the listing status of the SONCC ESU coho salmon was initiated during 2002 in response to a petition to de-list the species in the Klamath River basin (67 Federal Register 40679-40680). This status review included evaluation of both natural and hatchery components of the ESU according to the recently proposed policy on the consideration of hatchery-origin fish in federal ESA listing determinations for Pacific salmon and

steelhead (69 Federal Register 31354-31359). NMFS recently concluded and proposed that the SONCC ESU coho salmon should remain listed under the ESA as a threatened species (69 Federal Register 33102-33179).

Critical habitat for the SONCC ESU coho salmon was designated on May 5, 1999. Critical habitat is designated to include all river reaches accessible to the listed coho salmon between Cape Blanco and Punta Gorda. Excluded are areas above specific dams or above longstanding, naturally impassable barriers (i.e., natural waterfalls in existence for at least several hundred years). In the Trinity River basin, designated critical habitat for the SONCC ESU coho salmon consists of the water, substrate, and adjacent riparian zone of those estuarine and riverine reaches (including off-channel habitats and accessible tributaries) downstream of Lewiston Dam (CFR Vol. 64, No. 86, May 5, 1999).

The 2000 Biological Opinion on the Trinity River Mainstem Fishery Restoration Program EIS/EIR found that the program “*is not likely to jeopardize the continued existence of the [SONCC ESU] coho salmon*”, and “*is not likely to destroy or adversely modify critical habitat for the [SONCC ESU] coho salmon*.”

This Biological Opinion included an incidental take statement authorizing the alternative actions described in this EA/DEIR, which envisioned some potential “take” of the listed coho salmon related to the channel rehabilitation component of the TRRP. The Biological Opinion states:

“The NMFS does anticipate that SONCC coho salmon habitat adjacent to and downstream of the 47 channel rehabilitation projects may be temporarily degraded due to localized turbidity and potential fine sedimentation of channel substrate during construction activities. However, the amount of habitat temporarily degraded due to these localized effects is negligible compared to the long-term creation of additional suitable habitat along approximately 40 miles of the Trinity River.”

The 2000 Biological Opinion includes several terms and conditions discussed in Chapter 1 of this EA/DEIR that serve to avoid and minimize “take” of the listed species during implementation of channel rehabilitation projects.

Both the 2000 Biological Opinion and the accompanying 2000 Biological Assessment explicitly acknowledged that construction at channel rehabilitation projects would not occur “within the wetted channel.” However, work in-river would occur during direct placement of gravel during coarse sediment additions. After considerable restoration planning and design work by TRRP staff and cooperating agencies (including NMFS), the TRRP now considers instream channel work as a necessary component to successfully carry out and achieve program goals and objectives as detailed within the Restoration Program Record of Decision. Having authorization to cross the Trinity and its tributaries for access to work sites and the option to work within tributary deltas and the mainstem Trinity River in order to create conditions necessary for sediment (gravel) routing as well as for safe passage of ROD flows (as planned at R5) provide the TRRP with the needed construction flexibility to maximize long-term benefits for Trinity River salmonid populations.

The TRRP concluded that reinitiation of formal consultation under section 7 of the Endangered Species Act is not warranted because effects to Federally threatened SONCC coho salmon are not likely to rise above those that were considered within the original 2000 Biological Opinion. In May 2006, NMFS concurred that reinitiation of formal consultation is not warranted if bank rehabilitation activities are allowed within the wetted channel. The Amendment of the Biological Opinion states:

“Coho salmon primarily utilize tributary habitat for spawning and rearing and therefore, large numbers of coho salmon are not expected to be rearing within the mainstem Trinity River during the summer and fall period. Any increase in turbidity level arising from instream construction activities will likely affect the small population of juvenile coho salmon via the same mechanism as previously considered, that is, forcing fish to move downstream to escape turbid conditions. How the effect differs under the new regime is that more fish will relocate a farther distance downstream considered to the greatest spatial extent of turbid water. However, NMFS expects that all displaced juvenile fish, including coho salmon, will find suitable habitat within river reaches downstream of the project, since juvenile rearing habitat within the Trinity River mainstem is likely under-saturated during summer and fall months. For these reasons, NMFS believes the proposed change to allow instream construction activities at future Trinity River Bank Rehabilitation sites is unlikely to cause additional effects to listed coho salmon above those that were considered within the original 2000 Biological Opinion.”

In 2000, the California Fish and Game Commission (Commission) received a petition to list coho salmon north of San Francisco as an endangered species under provisions of the CESA. The Commission required that a comprehensive, state-wide coho salmon recovery strategy and plan be developed while they considered the petition. The coho recovery plan was adopted by the Commission in February 2004 (California Department of Fish and Game 2004). The Commission declined to list the coho under CESA in June 2004 on a split vote. On August 5, 2004, the Commission made the decision to list the California portion of the SONCC ESU coho as threatened north of Punta Gorda.

The green sturgeon was petitioned for listing in 2001. After a lengthy review, NMFS determined that the species does not warrant listing in a status review published on January 29, 2003. In April 2005, NMFS proposed to list North American green sturgeon south of the Eel River (the southern distinct population segment, or DPS); because of concerns over the uncertainty and availability of data, the northern DPS was placed on NMFS' Species of Concern List and its status will be reassessed within 5 years if information warrants. There is no evidence to suggest that this species is present in the Trinity River above Burnt Ranch Falls.

The Pacific lamprey, along with three other lamprey species, was petitioned for federal listing in 2003. On December 27, 2004, the USFWS announced that the petition along with additional information does not present substantial scientific or commercial information indicating that listing of these species may be warranted (CFR Vol. 64, No. 86, December 27, 2004).

The Klamath Mountains Province (KMP) ESU of steelhead, which includes stocks from the Trinity River, was proposed for listing as threatened on March 16, 1995; however, on February 7, 1998, NMFS determined that the population did not warrant threatened status, but that it did warrant candidate status

(as defined by NMFS). Subsequent information on the KMP ESU steelhead was evaluated and NMFS made a final listing determination that the ESU did not warrant listing in April 2001 (CFR Vol. 66, No. 65). The summer-run population segment of this ESU remains a California species of special concern, as well as a USFS sensitive species (Moyle 1995; U.S. Fish and Wildlife Service 1995).

Similarly, in a 1998 status review of all west coast Chinook salmon stocks (Myers et al. 1998), the upper Klamath-Trinity Rivers ESU Chinook salmon was determined to not warrant listing as a threatened or endangered species. However, spring-run Chinook salmon within the Klamath-Trinity basin is a California species of special concern (Moyle 1995). The 2005 NMFS status review did not reveal new information that would warrant listing of the upper Klamath-Trinity ESU Chinook salmon (Good et al. 2005).

Local Setting

Native Anadromous Fish Species

All three species of native anadromous salmonids (i.e., spring- and fall-run Chinook salmon, coho salmon, and summer/fall- and winter-run steelhead) may be expected to occur within the project boundary. All freshwater life stages of these species (i.e., adult, egg, fry, and juvenile/smolt) may be expected to use habitats within the project boundary. The anadromous Pacific lamprey may also be expected to occur in each of its freshwater life stages (i.e., adult, egg, larval ammocoete, metamorphosed and emigrating juvenile) within these reaches.

Adult spring-run Chinook salmon utilize the Trinity River corridor for holding and spawning habitat. Adult spring-run Chinook are likely to hold in the deeper pool habitats, especially from late April through August. These fish commence spawning about the second week of September and spawn through mid-October. Fry and juvenile spring-run Chinook salmon would be expected in suitable habitats throughout the site from late December through October. Outmigration of spring-run smolts would occur from late October through June.

Adult fall-run Chinook salmon migrate to, and are expected to spawn within and near, the project reach in all suitable habitats, typically from late September through mid-December. Fry and juveniles are expected in suitable rearing habitats from January through June (Manji, pers. comm. 2004). Sub-yearling fall Chinook smolts generally outmigrate from April through June (Leidy and Leidy 1984; Moyle 2002).

Aquatic Habitat Conditions

The aquatic environment in the general vicinity of the Indian Creek Restoration Site is characterized by a simple sequence of riverine habitat types (i.e., riffles, runs, and pools). Each of these habitat types consists of distinctive combinations of depth, water velocity, water temperature, cover, substrate composition (i.e., bedrock, cobble, gravel, sand, silt, etc.), and adjacent riparian vegetation.

Figures 3.6-3a and 3.6-3b illustrate aquatic mesohabitat as defined by the USFWS for the Indian Creek Restoration Site. Riparian vegetation directly adjacent to the river is referred to as shaded riverine aquatic (SRA) habitat and is included as a component of designated critical habitat for coho salmon, as well as a component of essential fish habitat (EFH) for both coho and Chinook salmon.

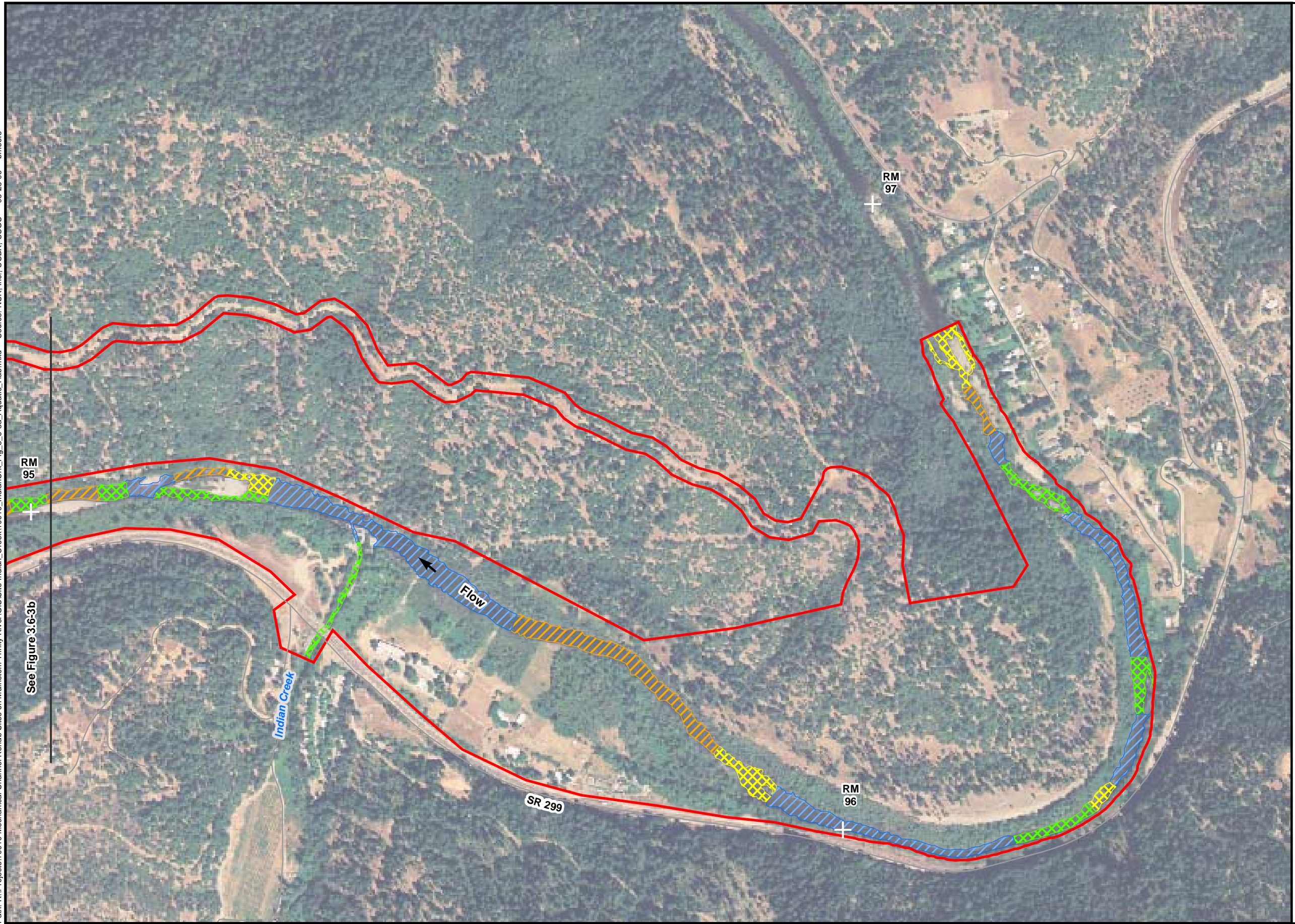
The Magnuson-Stevens Fishery Conservation and Management Act (MSA) defines EFH as those waters and substrates necessary for spawning, breeding, feeding, or growth to maturity. As defined, the term “waters” includes aquatic areas (and their associated physical, chemical, and biological properties) that are used by fish or, where appropriate, have historically been used by fish. The term “substrate” includes sediment, hard-bottom, structures underlying the waters, and associated biological communities. “Necessary” means the habitat required for a sustainable fishery and the managed species’ contribution to a healthy ecosystem. Finally, “spawning, breeding, feeding, or growth to maturity” refers to a species’ full life cycle.

Freshwater EFH for salmon consists of four major components: spawning and incubation habitat; juvenile rearing habitat; juvenile migration corridors; and adult migration corridors, including adult holding habitat (Pacific Fisheries Management Council 2000). Important components of EFH for spawning, rearing, and migration include adequate substrate composition; water quality (e.g., dissolved oxygen, nutrients, temperature); water quantity, depth, and velocity; channel gradient and stability; food; cover and habitat complexity (e.g., large woody debris, pools, channel complexity, aquatic vegetation); space; access and passage; and floodplain and habitat connectivity (Pacific Fisheries Management Council 2000). The Indian Creek Restoration Site provides all four major components of EFH as defined by the Pacific Fisheries Management Council.

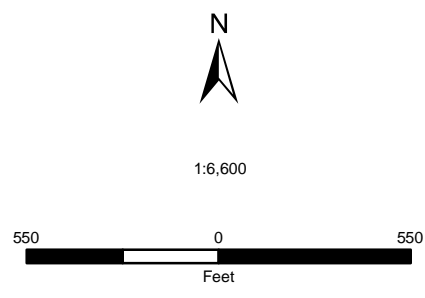
The Indian Creek Restoration Site provides spawning habitat for all anadromous salmonids. Suitable spawning habitat occurs in all of the riffles, particularly in the low-gradient riffles and tail-outs of pools and deep run/glide habitats. Fall- and spring-run Chinook salmon and coho are reported to spawn at these sites (C. Chamberlain, U.S. Fish and Wildlife Service–Arcata, unpublished data and Sinnen 2005). Salmon spawner surveys in the upper Trinity River conducted annually by the CDFG (in cooperation with the Yurok Tribe, USFWS, and USFS) report that the greatest concentration of Chinook and coho salmon spawning occurs in the upper survey sections (Sections 1 and 2) which range from Lewiston Dam to old Lewiston Bridge and Old Lewiston Bridge to Bucktail Bridge, respectively. The Indian Creek Restoration Site falls within Section 4 of the survey area (Steel Bridge to Douglas City Camp), which had considerably lower densities of salmon carcasses recovered for the 2003-2004 season. The distribution of Chinook salmon redds within the Indian Creek Rehabilitation Site for the years 2001-2005 suggests that spawning occurs throughout the project reach in all suitable habitat, with the greatest concentration (approximately 37 percent) occurring between RM 96 and RM97, which includes activity area R-1. _ (C. Chamberlain, U.S. Fish and Wildlife Service–Arcata, unpublished data).

The Indian Creek Restoration Site provides suitable habitat for salmonid rearing. Large cobbles and boulders dominate the river bottom in these habitats, providing suitable cover and refuge for rearing salmonids. Overhanging riparian and aquatic vegetation contributes shade and physical cover value to highly suitable salmonid rearing habitat in the reach upstream of the Indian Creek confluence. Chinook fry habitat is limited to the stream edges in the low-gradient riffles and on point bars. Additional Chinook fry rearing habitat exists at the tail outs of the pool habitats.

Although juvenile coho rearing habitat is considered to be limited in the general vicinity of this site, juveniles are expected in suitable habitats year-round throughout the mainstem from the North Fork Trinity River confluence upstream to Lewiston Dam (Glase, pers. comm. 2002). Pool habitat associated



- Site Boundary
- River Mile (RM)
- Match Line
- Aquatic Habitat Type**
 - Run
 - Pool
 - Low Slope
 - Moderate Slope



Aerial photography:
July 2005

Indian Creek Rehabilitation Site: Trinity River Mile 93.7 to 96.5

Figure 3.6-3a
Aquatic Habitat

Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Indian_Creek\10010 IndianCk_Fig_3.6-3b_Aquatic_Hab.mxd Source: NSR, Inc.; USBR, USGS 03-27-06 bmoore

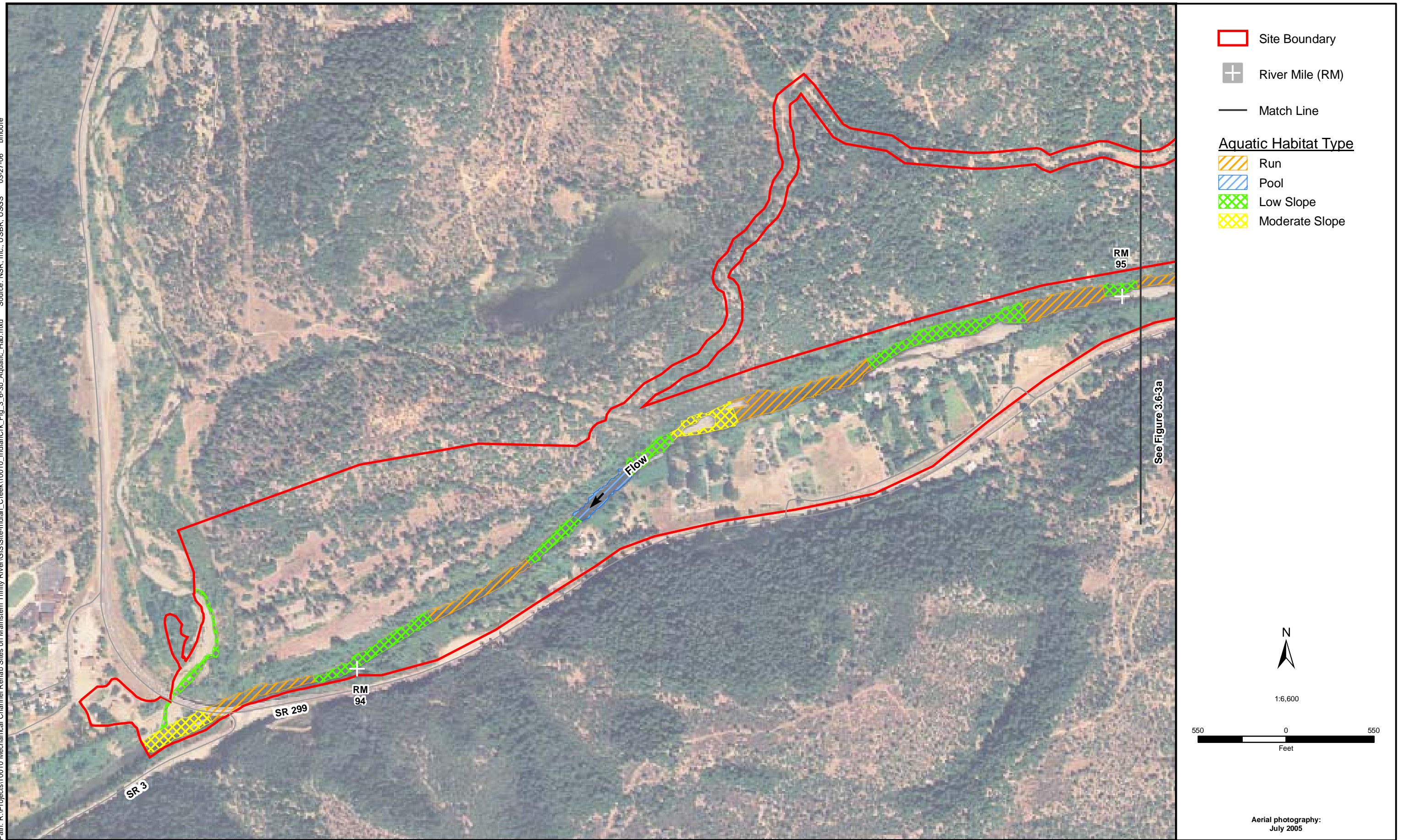


Figure 3.6-3b
Aquatic Habitat

with boulders and large woody debris is particularly preferred habitat by rearing coho salmon (Hassler 1987; Sandercock 1991; Moyle 2002). Additionally, Brown et al. (1994) reported pool habitats greater than 1 meter in depth were preferred by juvenile coho salmon. Habitat meeting these criteria exists within the Indian Creek Restoration Site, primarily upstream of the Indian Creek Confluence. Along this reach, a large run/glide is considered to be very suitable coho rearing habitat, as depth along the right river bank is greater than 1-meter with a complex of overhanging and submerged riparian vegetation.

In 2003, NSR conducted a radio telemetry study of migration and behavioral thermoregulation of spring-run Chinook salmon in the upper Trinity River for the TRRP (Marine and Lyons 2004). During the course of this study, numerous observations were obtained of spring-run Chinook salmon holding in the Indian Creek Restoration Site reach. In particular, the pool habitats around the Indian Creek confluence and the long deep run/glide upstream of the confluence were used as staging sites prior to spawning by spring run salmon. Fish were also observed holding in pool habitats around the bend upstream of RM 96. The relatively high number of observations of spring-run Chinook salmon holding in this reach compared to other nearby areas suggests that this reach has a high over-summering habitat value for spring-run Chinook salmon.

Adult summer/fall-run steelhead migrate to and hold in the deeper pools and runs in the general vicinity of the project site from April through January (Leidy and Leidy 1984, Moyle 2002). These fish typically feed actively through the salmon spawning season, and migrate to the upper-most river reaches and into tributaries to spawn from February through April. Winter-run steelhead migrate to spawning grounds from November through April and spawn during the same time as the summer/fall run. Suitable steelhead spawning habitat occurs in the riffles within the project reach. Fry and juvenile steelhead of both runs may be expected in the riffle and run/pool habitats year-round, especially those associated with large cobble and boulder cover as well as overhanging riparian vegetation and large woody debris (Hampton 1988; Moyle 2002). Suitable juvenile steelhead rearing habitat occurs throughout the project reach with the highest quality rearing habitat occurring in the upper half of the reach.

Adult Pacific lampreys migrate to spawn in the upper Trinity River and tributaries during the spring and early summer, although they are documented to occur in the river near Lewiston through August (Moffett and Smith 1950; Moyle 2002). Suitable lamprey spawning habitat occurs on the low-gradient riffles and on the run/pool tail outs throughout the site. Based on juvenile outmigrant trapping data, larval lampreys and juveniles are expected to be abundant year-round in the upper Trinity River (Glase, pers. comm. 2002). Juveniles require areas of relatively slow currents and mud- and sand-bottomed backwaters and pools, where they burrow and filter feed on detritus and algae (Moyle 2002). Based on this habitat preference, lamprey ammocoetes may be expected in the mud and sand sediments of the pool and run/edgewater habitats throughout the project reach.

Weaver and Indian creeks support runs of steelhead, Chinook and coho salmon and are designated critical habitat for SONCC ESU coho salmon and considered EFH for coho and Chinook salmon. Coho salmon are historically known to spawn in Weaver Creek, and coho have recently been observed in Weaver Creek, including East and West Weaver Creek (California Department of Fish and Game 2002). Coho salmon are present in Indian Creek and have been identified as recently as 2003 (CDFG unpublished data).

Resident Native and Non-Native Fish Species

Site-specific information on the occurrence of resident fish species is not available for the Indian Creek Rehabilitation Site. This EA/DEIR evaluates the potential for resident fish species to occur in or near the project reach based on habitat characteristics observed and professional knowledge of the habitat requirements and general geographic distributions of species known to inhabit the Trinity River. Species that can be expected to occur include speckled dace, Klamath smallscale sucker, three-spined stickleback, coast range sculpin, and marbled sculpin, although the latter species is considered uncommon in the Trinity River (Moyle 2002). All of these species may occur as adults and juveniles within the project reaches. They may be found in the pools, runs, and riffles during the spring and summer months, but retreat to the pools and slow edgewater areas during the winter months and higher flows. It is not known if these species spawn in the general vicinity of the Indian Creek Rehabilitation Site.

Adults and juveniles of the introduced brown trout are known to occur within the Trinity River downstream of Lewiston Dam. Brown trout are thought to occur mostly as a resident population occurring upstream of Grass Valley Creek, although significant numbers of brown trout are captured each year in the CDFG upstream migrant trap at Junction City (M. Currier, California Department of Fish and Game, pers. comm.) Whether these fish are anadromous migrants or simply moving within the river is not certain, although brown trout are known to exhibit anadromy in other streams where they occur. Brown trout have not been reported from the project reach; however, the reach provides suitable habitat for this species.

3.6.2 REGULATORY SETTING

This section lists specific environmental review and consultation requirements and identifies permits and approvals that must be obtained from local, state, and federal agencies before implementation of the rehabilitation activities.

Federal

National Marine Fisheries Service

Federal Endangered Species Act

The ESA defines “take” (Section 9) and generally prohibits the “taking” of a species that is listed as endangered or threatened (16 USC. 1532, 50 CFR 17.3). Under the ESA, the “take” of a federally listed species is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The term “harm” includes intentional or negligent acts or omissions that actually kill or injure wildlife. Such acts may include significant habitat modification or degradation when it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Section 7 of the ESA requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat for these species. Reclamation, the federal lead agency for the Proposed Action, is required to consult with NMFS concerning effects to SONCC ESU of coho salmon pursuant to Section 7 of the ESA. The 2000 Biological Opinion and Incidental Take Statement on the Mainstem Fisheries Restoration Program EIS/EIR provided ESA Section 7 coverage for the Proposed Action.

Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a federal fisheries management plan.

The MSA requires federal agencies to consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agencies, that may adversely affect EFH (MSA Section 305[b][2]). A component of this consultation process is the preparation and submittal of an Essential Fish Habitat Assessment (EFHA). The length of the EFHA will vary based on the complexity and magnitude of potential impacts to EFH, but all EFHAs must include the following information: (1) a description of the proposed action; (2) an analysis of the effects, including cumulative effects, of the proposed action on EFH, the managed species, and associated species, such as major prey species, including affected life history stages; (3) the federal agency's views regarding the effects of the proposed action on EFH; and (4) proposed mitigation, if applicable. In instances where MSA and ESA issues overlap, NMFS encourages an integrated approach for consultation.

The EFH mandate applies to all species managed under a federal fishery management plan (FMP). For the Pacific coast (excluding Alaska), there are three FMPs covering groundfish, coastal pelagic species, and Pacific salmon. As the federal lead agency, Reclamation will need to consider the impact of the Proposed Action on EFH for coho and Chinook salmon in the Trinity River pursuant to the Pacific Coast Salmon FMP.

State

California Endangered Species Act

Under the CESA, the CDFG has the responsibility for maintaining a list of endangered and threatened species (California Fish and Game Code 2070). The CDFG also maintains a list of "candidate species," which are species that the CDFG formally notices as being under review for addition to the list of endangered or threatened species. In addition, the CDFG maintains lists of "species of special concern," which serve as species "watch lists." Pursuant to the requirements of the CESA, any local or state agency reviewing a proposed project within its jurisdiction must determine whether any species that is state listed as endangered or threatened may be present in the project study area and determine whether the proposed project will have a potentially significant impact on any of these species. In addition, the CDFG encourages informal consultation on any proposed project that may affect a candidate species.

Project-related impacts to species listed as endangered or threatened under CESA would be considered significant. State-listed species are fully protected under the mandates of CESA. "Take" of protected species incidental to otherwise lawful management activities may be authorized under Section 2081 of the Fish and Game Code of California. Authorization from CDFG would be in the form of an Incidental Take Permit. For the Proposed Action, the Regional Water Board, as the CEQA lead agency, would need to obtain an incidental take permit if the activities described in this EA/DEIR could result in the take of a state-listed species (i.e., coho salmon).

“Fully Protected” Fish Species

California law (Fish and Game Code, § 5515) also identifies 10 “fully protected fish” that cannot lawfully be “taken,” even with an incidental take permit. None of these species is present in the Trinity River or its tributaries.

Local

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies related to fishery resource issues described in this EA/DEIR, were taken from the applicable elements of the General Plan (Trinity County 2001), including the Douglas City Community Plan (Trinity County 1987).

County Wide Goals and Objectives

Environmental

To strive to conserve those resources of the County that are important to its character and economic well-being

- by assuring that developments occurring on these lands are compatible with the resources;
- by strongly supporting the County as “lead agency” or as an integral participant in any state or federal project within the County so that all agencies are made aware of local desires and all plans are coordinated;
- by utilizing a sound resource-related planning process in decision-making; and
- by protecting not only rare and endangered species, but also required habitat for more plentiful species.

Douglas City Community Plan Goals and Objectives

The Douglas City Community Plan (Trinity County 1987) covers approximately 35 square miles (22,400 acres) centered around the Trinity River from Grass Valley Creek to slightly downstream from Steiner Flat.

Natural Resources

Goal: To protect and improve fish habitat within the Plan area.

- Encourage the development of restoration projects within the Plan area.

Goal: Encourage the continued use of suitable lands for resource production purposes.

- Encourage the sound use of mineral resources, especially sand and gravel operations that also reduce the sedimentation in the Trinity River.

Project Consistency with the Trinity County General Plan

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan, Douglas City Community Plan) to determine if there are any inconsistencies.

The goals and objectives described in Chapter 1 are generally compatible with the applicable General Plan goals and policies summarized above. The overall goal of the Proposed Action is to rehabilitate the site so that it functions in a manner that is closer to historic conditions (e.g., pre-Lewiston Dam).

3.6.3 ENVIRONMENTAL CONSEQUENCES/IMPACTS AND MITIGATION MEASURES

Methodology

The following section provides a brief overview of the analytic methods used to assess potential impacts of the Proposed Action on fisheries resources. These methods include a comprehensive literature search and focused field surveys.

Evaluation of the presence of special-status fish species and sensitive habitats within the project boundary established for the Proposed Action was conducted by performing a database search of the CNDDDB, informally consulting with resource agencies (i.e., CDFG, NMFS, USFWS), and reviewing environmental documents and technical studies prepared for projects in the vicinity. Representatives from the Corps, CDFG, NMFS, USFWS, and the Hoopa Valley and Yurok Tribes were contacted to discuss specific biological resource issues associated with the Proposed Action, including potential impacts and suggested mitigation measures.

Aquatic habitat within the Indian Creek Rehabilitation Site was identified, reviewed, and characterized based on USFWS mesohabitat delineations map, reconnaissance-level site visits in April and May 2006, consultation with local fishery biologists, and review of pertinent literature and data. These efforts were conducted to characterize the aquatic habitats and potential suitable spawning, holding and rearing habitat present within the site boundary.

Significance Criteria

Significance criteria used to assess the potential impacts of the Proposed Action on fisheries resources are based on the current scientific understanding of biological requirements and ecological status of the species of interest, and the regulatory standards of county, state, and federal agencies, including the *CEQA Guidelines*. A significant impact on anadromous salmonids and other native fish would occur if the project would result in any of the following:

- potential to substantially reduce the number or restrict the range of an endangered or threatened native fish species or a native fish species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- potential for substantial reductions in the habitat of any native fish species other than those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;

- potential for causing a native fish population to drop below self-sustaining levels;
- substantial adverse effect, either directly or through habitat modifications, on any native anadromous species identified as a sensitive or special-status fish species in local or regional plans, policies, or regulations;
- substantial interference with the movement of any native anadromous or resident fish species;
- a conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan relating to the protection of native anadromous species or resident fish species;
- mortality of state- or federally listed fish species, or species that are candidates for listing or proposed for listing;
- reductions in the size of the population of a native fish species sufficient to jeopardize its long-term persistence;
- temporary impacts to habitats such that native fish species suffer increased mortality or lowered reproductive success that jeopardizes the long-term persistence of those local populations;
- permanent loss of designated critical habitat and/or essential habitat of a listed species or special-status native fish species; or
- reduction in the quantity or quality of habitats in which native fish species populations occur sufficient to reduce the long-term abundance and productivity of local populations.

Impacts and Mitigation Measures

The following sections provide detailed descriptions of the potential impacts to fishery resources and mitigation measures for each alternative evaluated in the EA/DEIR. To reduce redundancy and improve readability, the impacts to the federally listed SONCC coho salmon, special-status species (i.e., “species of special concern” for CEQA, and “species of concern” for NEPA), and non-listed fish species are described together under each alternative action. Because the threshold for “significance” of an impact is lower (i.e., more restrictive) for threatened and endangered species, impacts are described separately when they differ among species. The effects have been evaluated for the principal species of interest and address the full range of potential impacts to anadromous and resident riverine fishes within the project boundary. The nature of the Proposed Action requires recognition that temporary impacts to salmonids and other riverine species would occur, but the ultimate goal of the project is to improve fish habitat suitability and availability over the long term.

Table 3.6-3 summarizes the potential fishery resource impacts resulting from implementation of the project.

TABLE 3.6 - 3

SUMMARY OF FISHERY RESOURCE IMPACTS FOR THE NO-ACTION ALTERNATIVE, THE PROPOSED ACTION, ALTERNATIVE 1 AND ALTERNATIVE 2 { TC "Table 3.6-3 Summary of Fishery Resource Impacts" \f B \l "1" }

No-Action Alternative	Proposed Action	Alternative 1	Alternative 2	Proposed Action with Mitigation	Alternative 1 with Mitigation	Alternative 2 with Mitigation
3.6-1. Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including federally listed coho salmon.						
NI	S	S	S	LS/B	LS/B	LS/B
3.6-2. Implementation of the project could result in increased erosion and sedimentation that could adversely affect fishes, including federally listed coho salmon.						
NI	S	S	S	LS	LS	LS
3.6-3. Construction activities associated with the project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including federally listed coho salmon.						
NI	S	S	S	LS	LS	LS
3.6-4. Construction activities associated with the project could result in the mortality of rearing fishes, including federally listed coho salmon.						
NI	S	S	S	LS	LS	LS
3.6-5. Implementation of the project would result in the permanent or temporary loss of shaded riverine aquatic habitat for anadromous salmonids.						
NI	S	S	S	LS	LS	LS
3.6-6. Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.						
NI	S	S	S	LS	LS	LS

LS = Less than Significant

S = Significant

SU = Significant Unavoidable

NI = No Impact

B = Beneficial

N/A = Not Applicable

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.6-1: Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including federally listed coho salmon. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, there would be no effects on spawning and rearing habitat other than those associated with current ongoing actions because the project would not be constructed.

Proposed Action

Coho Salmon. No permanent adverse effects to spawning habitat for coho salmon within the project boundary will occur. Figures 3.6-4a and 3.6-4b illustrate the extent of the grading and excavating activity that would occur under the Proposed Action. The long-term design objective is that implementation of the Proposed Action along with the flow management regime identified in the TRRP ROD would re-activate channel migration across the floodplain within the project boundary. This dynamic fluvial channel would result in a net increase in point bar surface area through coarse sediment deposition, thereby increasing riffle-spawning habitat within the project boundary. Temporary effects on spawning

habitat associated with construction of the Proposed Action are expected to be limited to short-term, localized sedimentation caused by settling of silt disturbed by bank-side excavation activities and the excavation and re-contouring of mid-channel alluvial materials at site R-5. Any salmon redds on or near this mid-channel bar could be destroyed or disturbed by this construction activity. Silt suspended by this activity may be dispersed and re-settle on downstream suitable spawning areas near this construction activity. However, excavation work at R-5 would only be conducted during late-summer, low-flow conditions, as established by the TRRP for the 2007 water year (e.g., July – September 15), which will avoid impacts to spawning anadromous salmonids.

Additionally, installation of temporary gravel berm crossings (i.e., X-1) for heavy equipment across the low-flow channel of the Trinity River upstream of site R-5, adjacent to R-2 and across Weaver Creek (X-2) in association with activity area R-9 could introduce a small amount of silt and cause stream bed disturbance, resulting in re-suspension of fine substrate materials (i.e., silt) and create short-term, localized increases in turbidity and suspended sediments. Crossing locations (i.e., X-1 and X-2) were selected based on spawning data provided by members of the TMC. In essence, this information indicated that these locations have not been utilized by spawning salmonids. River crossings at R-2 and R-9 would occur only during low flow conditions (Trinity River flows of < 1,500 cfs) which typically take place between July through December but a few equipment crossings at low flow conditions during other months (e.g., late winter/early spring) might also be required. Although the amount of silt mobilized by construction of these crossings is expected to be minimal, this silt could be deposited on either spawning habitat and/or on salmon redds downstream of the activity areas.

Construction in and near the low-flow channel is planned to occur during autumn and winter months (between November 1, 2006 through Oct 15, 2007). Project activities may require access to these riverine areas during other low-flow periods. Grading activities at R-8, R-9 and X-2 are scheduled to begin during the fall of 2006 and winter of 2007 to ensure that the TRRP has flexibility to release the ROD flows (up to 11,000 cfs) in the spring of 2007. Consequently, it is likely that some of this work would occur during the coho salmon spawning period.

Suitable rearing habitat for juvenile coho salmon and other salmonids occurs within the project boundary. However, rearing habitat for coho salmon is limited by the relatively small amount of pool and backwater habitat associated with suitable cover. Some temporary effects on the quality of juvenile salmonid rearing habitat will occur through removal of riparian vegetation that contributes to SRA habitat in the project reaches and through the placement of low-flow channel crossings on the Trinity River at R-2 and Weaver Creek at R-9. These temporary effects range from elimination of stream shading that moderates localized water temperatures to removal of physical cover provided by overhanging riparian vegetation and associated roots protruding from eroding banks. The temporary effects of construction of low-flow channel crossings will range from reducing the stream depth at two narrow channel cross sections with gravel fill to physical disturbances associated with in-river work. These principal resultant effects on fish include displacement of rearing salmonid fishes from the locations of low-water crossings by reducing the suitability of the habitat, and increased predation risk or reduced feeding efficiency through the loss of the cover function provided by the SRA habitat (Michney and Hampton 1984; Michney and Deibel 1986).

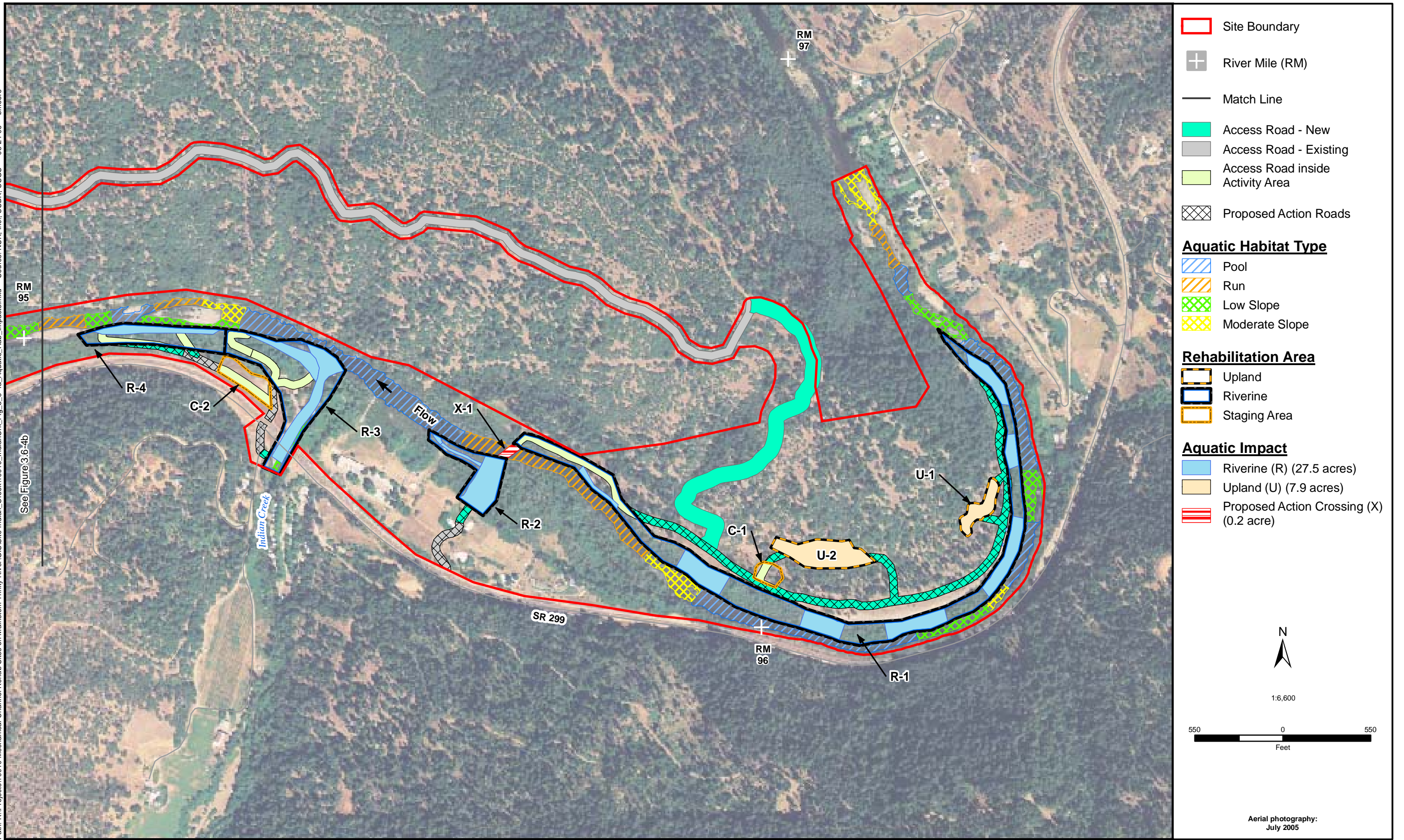


Figure 3.6-4a
Impacts of Proposed Action and
Alternative 1 on Aquatic Habitats

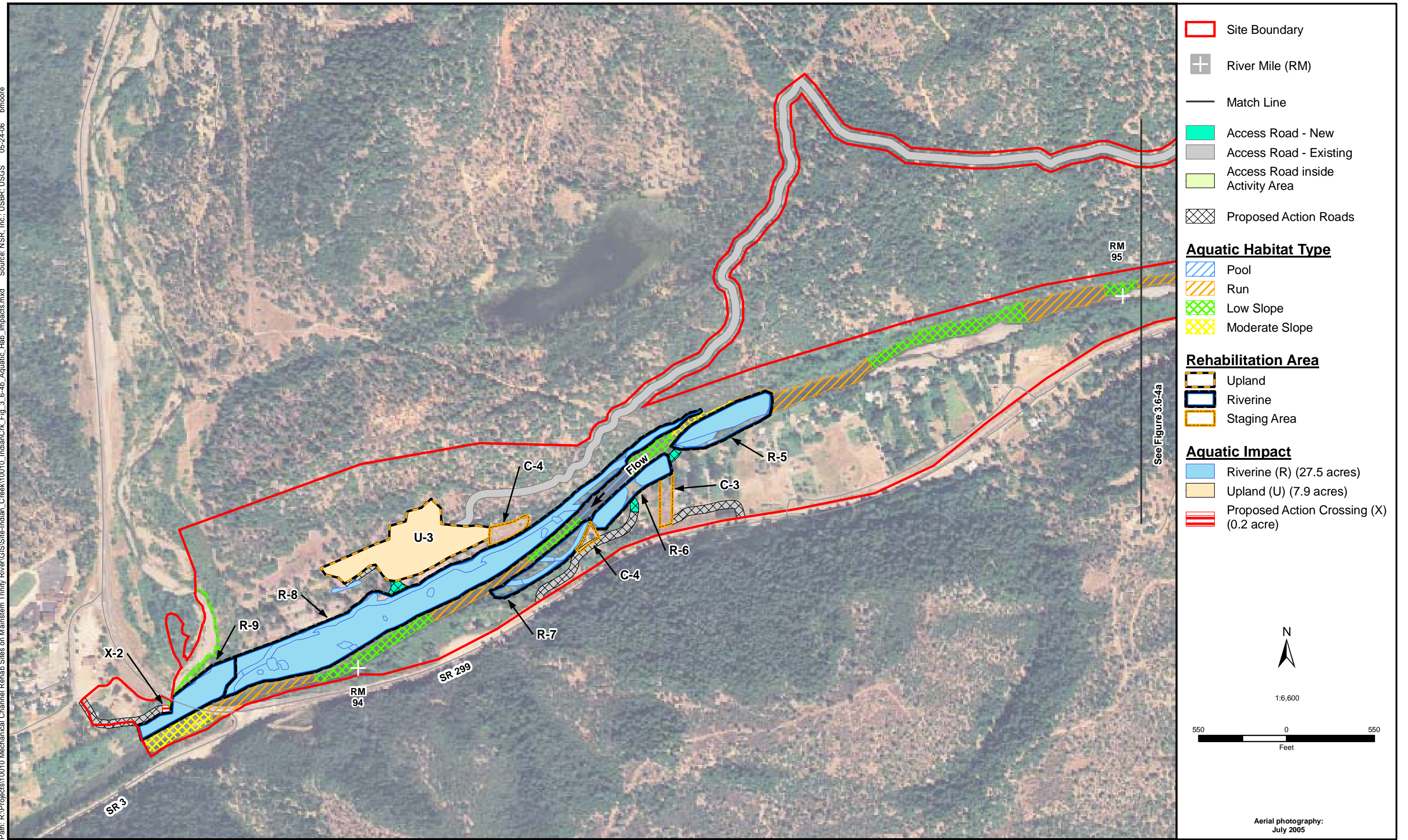


Figure 3.6-4b
Impacts of Proposed Action and Alternative 1 on Aquatic Habitats

The limited and localized temporary impacts on rearing habitat are expected to be offset in the long-term by beneficial increases and improved suitability of physical rearing habitat associated with implementing the Proposed Action. These benefits will accrue from the engineered improvements of floodplain connection to the river, channel migration through the upper elevation floodplain, and revegetation of the rehabilitated floodplain with native plant species that will eventually contribute shade and large wood to the river channel. Improved river connection with the floodplain during high spring-time flows is expected to increase areas of slow, shallow-water habitat preferred by salmonid fry. The process of channel migration through the floodplain may also create new shallow point bars, further increasing the availability of this preferred habitat. The channel migration process and engineered side channel habitats will collectively increase the relative abundance of this preferred salmon fry rearing habitat, compared to the existing condition within the project reaches. The Proposed Action will include construction of a side channel providing habitat at flows over 1,000 cfs and providing a backwater habitat at lower flows at R8. Ultimately, the collective changes in channel morphology as a result of the Proposed Action together with the planned future bank rehabilitation projects throughout the upper Trinity River will improve rearing habitat diversity for all anadromous salmonids (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999).

Chinook Salmon. Potential impacts and benefits to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Action would be generally similar to those previously described for coho salmon. Spring- and fall-run salmon are known to spawn and rear within the project boundary. Additionally adult spring-run salmon over-summer in the deeper run and pool habitats near the R1 rehabilitation unit where bank work and installation of a low-water crossing may disturb staging fish using this area during the summer months; however, over-summering habitat is available to these fishes in adjacent river reaches upstream and downstream of the project site. Spring-run Chinook salmon juveniles can be expected to rear year-round within the project boundary and may be displaced by in-river work activities.

Steelhead. Potential impacts and benefits to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Proposed Action would be generally similar to those previously described for coho and Chinook salmon. Summer, fall, and winter runs of KMP ESU steelhead are known to migrate and stage, and may spawn (as adults) and rear (as juveniles) within the project boundary established for the Proposed Action.

Pacific Lamprey. Potential impacts and benefits to Pacific lamprey populations in the Trinity River resulting from implementation the Proposed Action would be similar to those previously described for coho salmon and other anadromous salmonids. Adult Pacific lampreys migrate upstream to spawn from spring through early summer and again in the fall. The removal of riparian vegetation that contributes to SRA habitat within the project boundary could also have a temporary impact on adult Pacific lamprey by reducing holding and hiding habitat, which is particularly important for upstream migrant adults. However, the implementation of the revegetation plan will alleviate this impact over the longer term.

Alternative 1

Coho Salmon. Rehabilitation activities at the Indian Creek Rehabilitation Site are common to both action alternatives. Alternative 1 would result in temporary and permanent construction-related impacts to riverine habitats similar to those described for the Proposed Action (Figures 3.6-4a and 3.6-4b), with the exception that river access to activity areas R-1, U-1 and U-2 would be by a new access road leading from an existing SPI road on the right bank of the river (Figure 2.1a) in contrast to using a low-flow channel crossing (X-1) adjacent to R-2 as described for the Proposed Action. Therefore, the short-term and localized direct impacts of this construction activity would be avoided for fish and habitat associated with over-summer holding adult Chinook salmon and steelhead; spawning for all salmon species; and rearing by juvenile coho, spring-run Chinook, and steelhead as compared to the Proposed Action. All of the expected benefits of the Proposed Action would also occur under this alternative.

Chinook Salmon. Alternative 1 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for Upper Klamath-Trinity Rivers ESU Chinook salmon generally similar to those associated with the Proposed Action, except for the elimination of the short-term and localized impacts associated with the low-flow crossing near R-2. All of the expected benefits of the Proposed Action would also occur under this alternative.

Steelhead. Alternative 1 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for KMP ESU steelhead generally similar to those associated with the Proposed Action, except for the elimination of the short-term and localized impacts associated with the low-flow crossing near R-2. All of the expected benefits of the Proposed Action would also occur under this alternative.

Pacific Lamprey. Alternative 1 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for Pacific lampreys similar to those associated with the Proposed Action. All of the expected benefits of the Proposed Action would also occur under this alternative.

Alternative 2

Coho Salmon. Temporary and permanent construction-related impacts to spawning and rearing habitat for coho salmon would be generally less for Alternative 2 than for the Proposed Action or Alternative 1 as illustrated on Figures 3.6-5a and 3.6-5b. Exclusion of the riverine activities at R-1, (e.g., berm removal) and the ancillary activity areas (i.e., U-1, U-2 and X-1) would substantially reduce the areal extent of the project. Therefore, the short-term and localized direct impacts of this construction activity would be avoided for fish and habitat associated with over-summer holding adult Chinook salmon and steelhead; spawning for all salmon species; and rearing by juvenile coho, spring-run Chinook, and steelhead as compared to the Proposed Action and Alternative 1. Construction related impacts from rehabilitation activities at R-5 and the low-flow channel crossing on Weaver Creek to spawning and rearing habitat for coho salmon are still anticipated to be significant. All of the expected benefits of the Proposed Action would also occur under this alternative, but to a lesser extent because less habitat is being created.

Chinook Salmon. Alternative 2 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for Upper Klamath-Trinity Rivers ESU Chinook salmon generally similar to

Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Indian_Creek\10010_IndianCk_Fig. 3.6-5a_Aquatic_Hab_Impacts_Alt-2.mxd Source: NSR, Inc.; USBR, USGS 05-31-06 bmoore

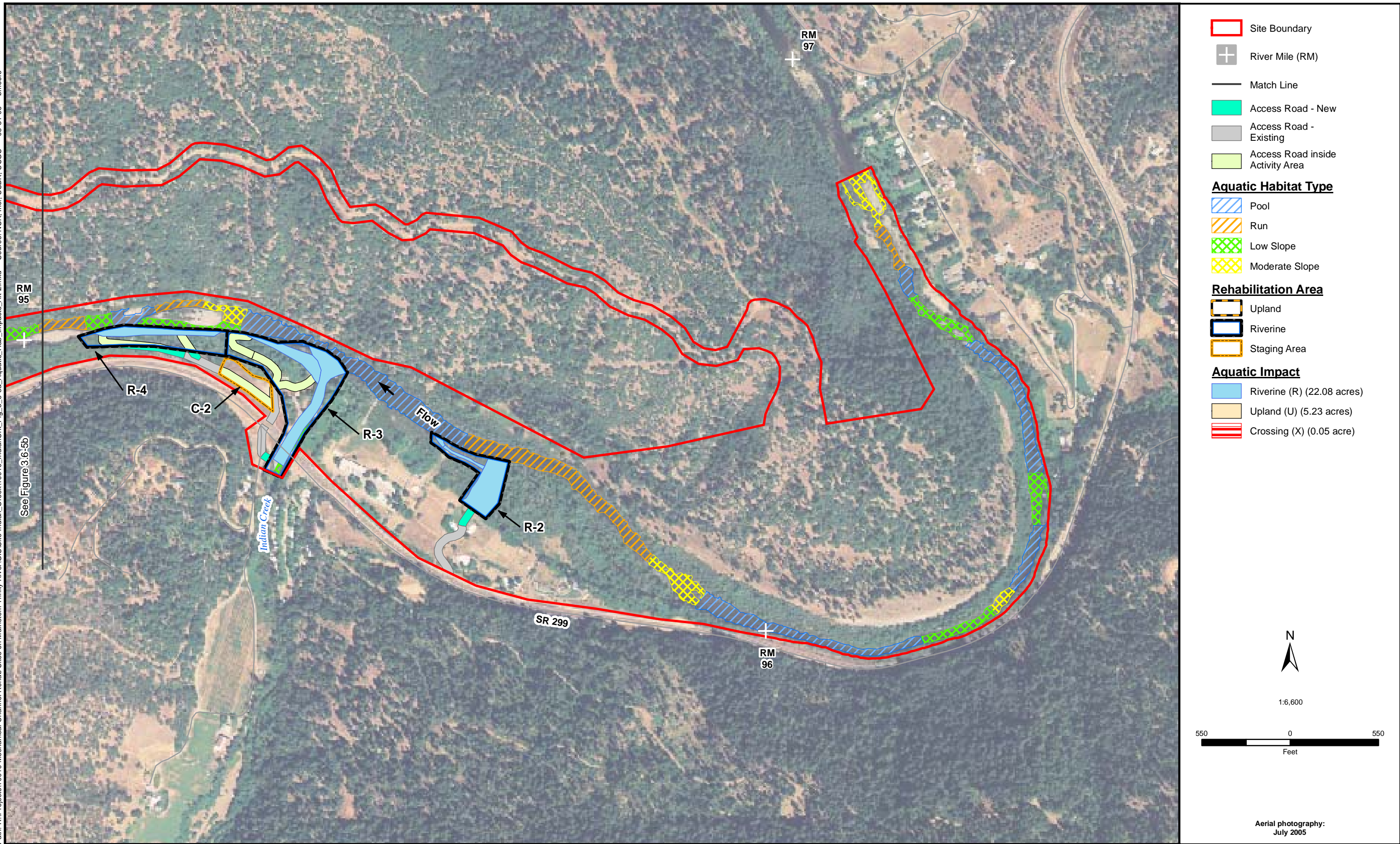


Figure 3.6-5a
Impacts of Alternative 2 on Aquatic Habitats

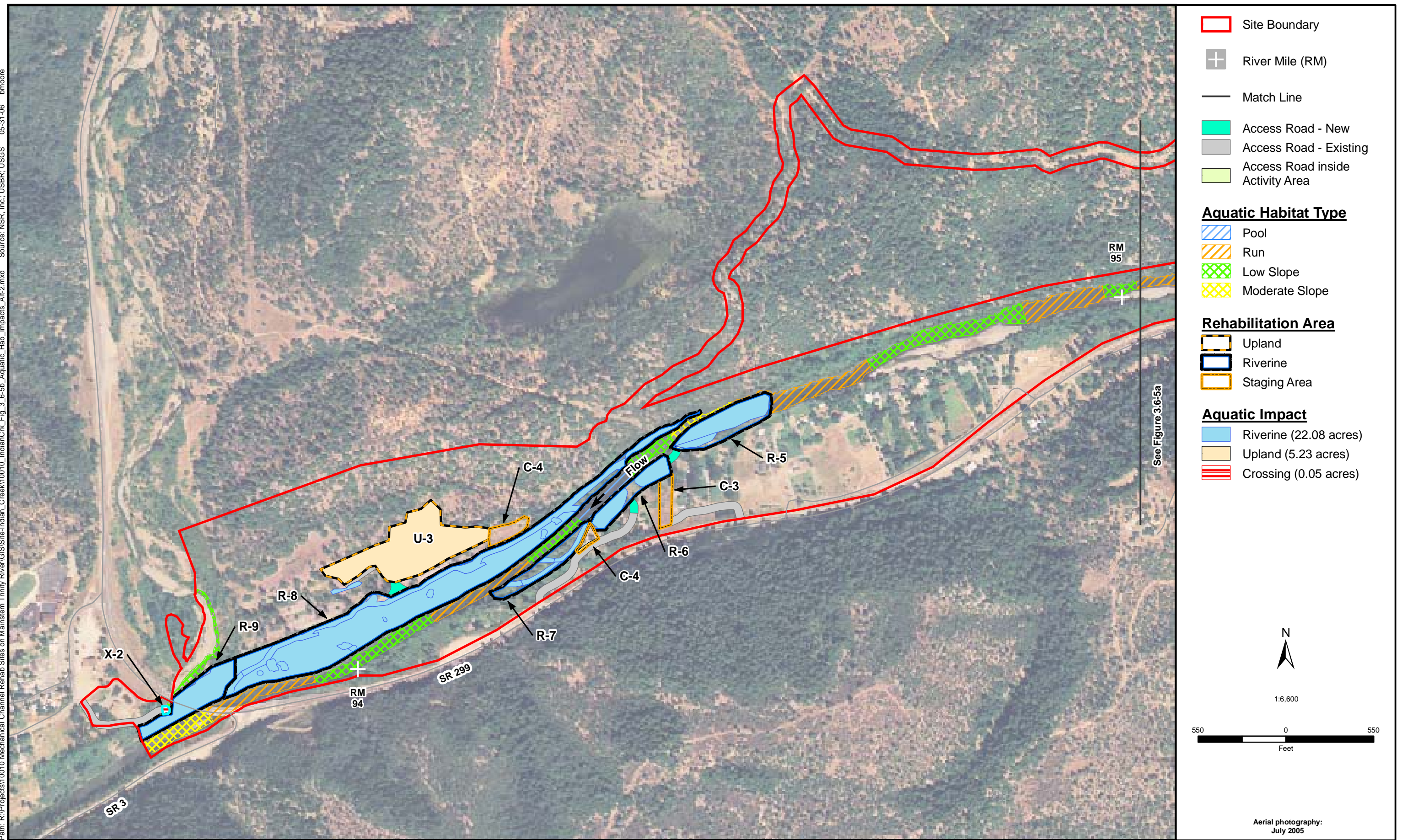


Figure 3.6-5b
Impacts of Alternative 2 on Aquatic Habitats

those associated with the Proposed Action and Alternative 1, except for exclusion of the riverine activities at R-1, (e.g., berm removal) and the ancillary activity areas (i.e., U-1, U-2 and X-1). The short-term and localized direct impacts of this construction on Chinook salmon spawning and rearing habitat are similar to those previously discussed for coho salmon. All of the expected benefits of the Proposed Action would also occur under this alternative, but to a lesser extent because less habitat is being created.

Steelhead. Alternative 2 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for KMP ESU steelhead generally similar to those associated with the Proposed Action and Alternative 1, except for exclusion of the riverine activities at R-1, (e.g., berm removal) and the ancillary activity areas (i.e., U-1, U-2 and X-1). The short-term and localized direct impacts of this construction on KMP ESU steelhead spawning and rearing habitat are similar to those previously discussed for coho and Chinook salmon. All of the expected benefits of the Proposed Action would also occur under this alternative, but to a lesser extent because less habitat is being created.

Pacific Lamprey. Alternative 2 would result in temporary and permanent construction-related impacts to spawning and rearing habitat for Pacific lampreys similar to those associated with the Proposed Action and Alternative 1. The short-term and localized direct impacts of this construction on Pacific lamprey spawning and rearing habitat are similar to those previously discussed for coho salmon Chinook salmon, and steelhead. All of the expected benefits of the Proposed Action would also occur under this alternative, but to a lesser extent because less habitat is being created.

Mitigation Measures

No-Action Alternative

Since no significant impacts were identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

- 1a.** Because the proposed construction schedule includes in-river work that could impact spawning spring- and fall-run Chinook salmon, coho salmon, and steelhead or their eggs once in the gravel, prior to the start of project construction, Reclamation or its contractor shall retain a qualified fisheries biologist to conduct a survey for active redds and potential spawning habitat 200 feet upstream and downstream of the proposed in-river construction activities. Anti-spawning mats (heavy-gauge wire fencing secured over streambed gravels) will be installed in areas identified as potential spawning sites within the immediate vicinity of the low-flow channel crossings at R2 on the Trinity River and R9 on Weaver Creek. These anti-spawning mats will temporarily preclude use of the area by spawning adults during project construction and will ensure that no impacts could occur to developing eggs that would otherwise be potentially laid in the gravel. Excavation work at R5 would only be conducted during late-summer, low-flow conditions (e.g., July – September 15) Anti-spawning mats will be installed prior to the beginning of spawning (i.e., on/or before September 15).
- 1b.** Fill gravels used on the streambeds and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand,

clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass the Caltrans cleanliness test #227 with a value of 85 or greater. This material will be graded to match natural streambed and bank contours at the site after completion of work. Care should be taken when removing gravel from the work berms following completion of construction activities to ensure that turbidity levels are not exceeded due to the disturbance of dirt and debris that may accumulate in the gravel during construction.

Significance after Mitigation: Less than Significant.

Impact 3.6-2: Implementation of the project could result in increased erosion and sedimentation levels that could adversely affect fishes, including federally listed coho salmon. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2.***

No-Action Alternative

Under the No-Action Alternative, there would be no increase in erosion or sedimentation levels that could adversely affect fish species because the project would not be constructed.

Proposed Action

Coho Salmon. Activities related to implementation of the Proposed Action would result in the localized loss of vegetation and general disturbance to the soil. Removal of vegetation and soil could accelerate erosion processes within the project boundary and increase the potential for sediment to enter the Trinity River. The turbidity of a water body is related to the concentration of suspended solids. Suspended solids and turbidity generally do not acutely affect aquatic organisms unless they reach extremely high levels (i.e., levels of suspended solids reaching 25 mg/L). At these high levels, suspended solids can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd 1980).

Within the project boundary, silt and sand in the river banks would be disturbed during excavation of the riverine activity areas. Exposed soils on the excavated surfaces are susceptible to mobilization from rainfall and during early season high flows. Fill placements and treatments in the upland spoiling sites could be susceptible to erosion and runoff during rainfall events. In-river excavation is planned as part of the Proposed Action, therefore, it is expected that excavation and operation of heavy equipment will resuspend silt and sand, which will result in localized and temporary increases of suspended sediment and turbidity.

Approximately, 0.15 acres of mainstem Trinity River main channel habitat and 0.05 acres of Weaver Creek Delta habitat will be temporarily impacted during construction by installation of two gravel berms to create low-flow channel crossings for occasional equipment crossings. Removal and spreading of gravels composing the temporary low-flow channel crossings after construction will restore stream channels to original contours. These activities will likely resuspend streambed sediments but are not likely to add silt material to the river. Use of washed, spawning-sized gravels and the cleaning of vehicle wheels prior to crossing the channel will minimize the effects of this action on fish habitat. Any juvenile

coho salmon rearing in the area during gravel placement or vehicle crossings may be temporarily displaced or their social behavior may be temporarily disrupted by turbidity created during this activity.

Erosion and deposition of fine sediments associated with implementation of the Proposed Action are expected to be localized and temporary. Some fine-textured materials may settle near or on known spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning. The majority of grading activities at the river's edge is expected to be performed during low flow periods between November 1, 2006 and October 15, 2007, as weather permits, and thus would increase the potential for effects on adult coho migration, spawning, and smolt emigration. However, excavation and grading within the channel at R-5 would only occur during low flow conditions between late July and September 15, 2007, minimizing potential for adverse effects on all life stages of coho salmon. Any juvenile coho salmon rearing in the area during this timeframe could be temporarily displaced or their social behavior could be temporarily disrupted by an increase in turbidity. Behavioral disruption, even temporarily, could result in some increased vulnerability to competitive interactions or predation for juvenile coho salmon (Berg and Northcote 1985). These temporary impacts were anticipated and addressed in the 2000 Biological Opinion and associated incidental take statement for the ROD and amended BO for in-stream work.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Action would be generally similar to those described for coho salmon. Consequently, resuspension of fine-textured sediment, potential erosion and sediment runoff, and elevated turbidity for short distances downstream could occur during the migration, spawning and rearing seasons. Spring- and fall-run Chinook salmon are known to spawn in suitable habitats encompassed by the project boundary. Construction activities are proposed during the spawning period and in-river construction may temporarily displace adult salmonids. Some fine-textured materials may settle near or on known spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning. Spring-run Chinook juveniles are expected to rear throughout the year within project boundary and transient increases in turbidity and resuspension of sediments are thought to have similar effects on juvenile Chinook salmon as on coho salmon. Adult spring-run Chinook salmon using holding habitat during the summer months may be displaced to other holding habitats either upstream or downstream by transient turbidity and sediment plumes created by construction activity.

Steelhead. Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho and Chinook salmon. Summer, fall, and winter runs of KMP ESU steelhead are known to migrate, stage (as adults), and rear (as juveniles) within the project boundary, throughout the proposed construction season. All three runs generally spawn during the winter.

Pacific Lamprey. Potential impacts on Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho salmon and other anadromous salmonids. Adult Pacific lampreys migrate upstream to spawn from spring through early summer and again in the fall. Larval lampreys inhabit the river year-round. Siltation of nests that may be built in suitable habitats (i.e., low-gradient riffles) could occur. Filter feeding by larval lampreys

could be disrupted by an increase in suspended sediments caused by construction-related erosion, although this impact would be very localized and temporary.

Alternative 1

Coho Salmon. Alternative 1 would result in temporary effects on coho salmon from erosion, sedimentation, and turbidity generally similar to those described for the Proposed Action, except for the elimination of the short-term and localized sediment and turbidity impacts associated with activity area X-1, adjacent to R-2. However, Alternative 1 could result in long-term erosion and fine sediment runoff to the Trinity River from the new access road required to reach site R-1. Access to R-1, U-1 and U-2 will require a new access road extending down to the right bank of the Trinity River from an existing road. Construction and utilization of this road segment would increase the potential for upland erosion and sedimentation. Studies show that roads within watersheds can contribute 50 to 80 percent of the sediment that enters streams (Hagans, Weaver, and Madej 1986). Additionally, surface erosion from roads can produce chronic sources of fine sediment, which can diminish salmon and steelhead spawning success (Cedarholm, Reid, and Salo 1981). All of the expected benefits of the Proposed Action would also occur for this Alternative.

Chinook Salmon. Alternative 1 would result in both temporary and potential chronic effects of erosion, sedimentation, and turbidity impacts for Upper Klamath-Trinity Rivers ESU Chinook salmon similar to those previously described for coho salmon.

Steelhead. Alternative 1 would result in both temporary and potential chronic effects on KMP ESU steelhead from erosion and sedimentation similar to those previously described for coho and Chinook salmon.

Pacific Lamprey. Alternative 1 would result in both temporary and potential chronic effects on Pacific lampreys from erosion and sedimentation similar to those previously described for coho, Chinook, and steelhead.

Alternative 2

Coho Salmon. Alternative 2 would result in temporary effects on coho salmon from erosion, sedimentation, and turbidity generally similar to those described for the Proposed Action and Alternative 1, although the short-term and localized sediment and turbidity impacts associated with the low-flow crossing (X-1) would be eliminated. , Additionally, potential long-term erosion and fine sediment runoff to the Trinity River from activities associated with R-1 would not occur.. Never the less, temporary impacts to coho salmon from erosion, sedimentation, and turbidity would be significant. All of the expected benefits of the Proposed Action and Alternative 1 would occur under this Alternative, but to a lesser extent because less habitat is being created.

Chinook Salmon. Alternative 2 would result in temporary effects of erosion, sedimentation, and turbidity impacts for Upper Klamath-Trinity Rivers ESU Chinook salmon similar to those previously described for coho salmon.

Steelhead. Alternative 2 would result in temporary effects on KMP ESU steelhead from erosion and sedimentation similar to those previously described for coho and Chinook salmon.

Pacific Lamprey. Alternative 2 would result in temporary effects on Pacific lampreys from erosion and sedimentation similar to those previously described for coho, Chinook, and steelhead.

Mitigation Measures

No-Action Alternative

Since no significant impacts were identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

- 2a.** Turbidity increases associated with project construction activities shall not exceed the Regional Water Board water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below.
- Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits.
- 2b.** To ensure that turbidity levels do not exceed the threshold listed above during project construction activities at the river's edge, Reclamation or its contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge construction activities. At a minimum, field turbidity measurements shall be collected on a daily basis during river's edge construction (within 10 ft of the water line). Whenever a visible increase in turbidity is observed, monitoring frequency shall be a minimum of every 2 hours.
- If the grab sample results indicate that turbidity levels exceed the established thresholds identified in the Basin Plan, actions shall be implemented immediately to reduce and maintain turbidity at or below the thresholds. Potential remedial actions include temporarily halting in-channel construction activities and implementation of additional Best Management Practices (BMPs) until turbidity is at or below the thresholds.
- 2c.** Proper implementation of erosion and sediment containment devices during and after construction shall be adequate to minimize sediment inputs into the Trinity River. Planting of native plants, hydroseeding, or other Type-D erosion control, shall be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. Soils shall not be left exposed during the rainy season.
- Because these activities must take place during the late fall, winter, and spring, temporary erosion and sediment control structures must be in place and operational at the end of each construction day and maintained until disturbed ground surfaces have been successfully revegetated upon completion of construction activities and/or decommissioning of the access road.

2d. Reclamation or its contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that describes Best Management Practices (BMPs) for the project. Ripping of all riparian areas to create furrows parallel to the river is expected to stop delivery of storm water to the river; however, BMPs, including silt fences, sediment filters, and routine monitoring to verify effectiveness, may be necessary. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until construction ends. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are functioning properly. Any erosion control devices found to be nonfunctional must be repaired or replaced following their discovery or by the end of the work day if rain is imminent or if a greater than 50 percent possibility of rain has been forecast within the following 24 hours by the National Weather Service. In those cases where, for safety reasons, repairs cannot be made immediately, they should be completed as soon as the work can safely be performed. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.

Alternative 1

2e. Reclamation or its contractor shall decommission the access road proposed in Alternative 1 to BLM standards.

Significance after Mitigation: Less than Significant.

Impact 3.6-3: Construction activities associated with the project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including federally listed coho salmon. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2.***

No-Action Alternative

Under the No-Action Alternative, there would be no risk of accidental hazardous material spills because the project would not be constructed.

Proposed Action

Coho Salmon. Construction activities typically include the refueling of construction equipment on location. As a result, minor fuel and oil spills could occur, and there would be a risk of larger releases. Without rapid containment and clean up, these materials could be toxic, depending on the location of the spill in proximity to surface water features, including the Trinity River, Indian Creek and Weaver Creek. Oils, fuels, and other contaminants could have deleterious effects on all salmonid life stages within close proximity to construction activities.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Steelhead. Potential impacts to KMP ESU steelhead populations in the Trinity River resulting from accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Pacific Lamprey. Potential impacts to Pacific lamprey populations in the Trinity River resulting from accidental spill of hazardous materials would be similar to those previously described for coho salmon.

Alternative 1

The risk of, and impacts resulting from, construction-related accidental spills of hazardous materials associated with Alternative 1 would be similar to those associated with the Proposed Action for all anadromous fish species.

Alternative 2

The risk of, and impacts resulting from, construction-related accidental spills of hazardous materials associated with Alternative 1 would be similar to those associated with the Proposed Action and Alternative 1 for all anadromous fish species.

Mitigation Measures

No-Action Alternative

Since no significant impacts were identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

Construction specifications shall include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) to vegetation and aquatic habitat resources within the project boundary:

- 3a.** Equipment and materials shall be stored away from wetland and surface water features.
- 3b.** Vehicles and equipment used during construction shall receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling shall be conducted in an area at least 150 feet away from waters of the Trinity River or within an adequate fueling containment area.
- 3c.** The contractor will develop and implement site-specific Best Management Practices (BMPs), a water pollution control plan, and emergency spill control plan. The contractor will be responsible for immediate containment and removal of any toxins released.

Section 3.5, Water Quality, and Section 3.15, Hazards and Hazardous Materials, provide additional details on mitigation measures developed for water quality standards, hazards, and hazardous materials. The responsible agencies (i.e., Regional Water Board) will be involved in the development and approval of these plans and practices.

Significance after Mitigation: Less than Significant

Impact 3.6-4: Construction activities associated with the project could result in the mortality of rearing fishes, including federally listed coho salmon. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2.***

No-Action Alternative

Under the No-Action Alternative, construction-related mortality to rearing salmonids would not occur because the project would not be constructed.

Proposed Action

Coho Salmon. Coho salmon are known to occur throughout the Trinity River. Limited suitable coho salmon rearing habitat exists within project boundary; however, juvenile coho salmon may be expected to rear within the project boundary year-round. Adult coho migrate through the project boundary, and suitable spawning habitat exists within the project boundary. Direct injury to, or mortality of, coho salmon may occur during in-river construction and construction of the low-flow channel crossing's planned under the Proposed Action. Construction in and near the low-flow channel is scheduled to occur during autumn and winter months (between November 1, 2006 through Oct 15, 2007), however access in and out of the sites might be required during other times of low flows, too. Excavation work at R-5 would only be conducted during late-summer, low-flow conditions (e.g., July – September 15), minimizing the potential for direct mortality to rearing coho, since few are known to occur in the project reach during the late-summer. River crossings at R-2 and R-9 would likely occur only during low flow conditions (Trinity River flows of < 1,500 cfs) which typically take place between July through December, but some equipment crossings at low flow conditions during other months (e.g., late winter/early spring) are also expected. Channel rehabilitation work planned at R-8 (and the associated crossing of Weaver Creek at R9) is scheduled for fall/winter 2006-2007 construction in order to provide the TRRP with flexibility to provide ROD flows of up to 11,000 cfs in spring 2007. Consequently, it is likely that some of this work would occur during the coho salmon spawning period.

A small, temporary, but uncertain level of stranding of coho salmon fry may occur on the newly excavated floodplains and side channels during rapidly receding flood-flow periods during the winter and early spring when fry are emerging. Additionally, construction of side channel features may result in stranding conditions as flows recede, particularly if the downstream end fills with fine sediments potentially stranding coho salmon fry. Although stranding of fry under such receding flood conditions occurs on naturally shallow floodplains and in flood bypasses (Sommer 2001), the constructed features may increase this process to varying degrees. All of the floodplain designs incorporate a downstream slope equal to that of the river channel and would drain in a downstream direction that would be guided toward the river channel by earthwork contours to minimize the potential for stranding. As fluvial channel migration occurs through the floodplain, the potential for fry stranding on the floodplain is expected to equilibrate to that of a natural stranding risk.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho salmon.

Steelhead. Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho and Chinook salmon.

Pacific Lamprey. Potential impacts on Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho salmon and other anadromous salmonids.

Alternative 1

Construction-related mortality of adult and juvenile fishes associated with Alternative 1 would be generally similar to that of the Proposed Action, except for elimination of the potential for direct impacts associated with construction, utilization, and removal of the low-flow channel crossings at R2 on the mainstem Trinity River and R9 on the Weaver Creek delta.

Alternative 2

Temporary and permanent construction-related impacts to adult and juvenile anadromous salmonids would be generally less for Alternative 2 than for the Proposed Action or Alternative 1. Exclusion of the riverine activities at R-1, (e.g., berm removal) and the ancillary activities (i.e., access, disposal of materials, staging) would substantially reduce the aerial extent of the project.

Mitigation Measures

No-Action Alternative

Since no significant impacts were identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

- 4a.** To avoid or minimize potential injury and mortality of fish during riverine activities (including in-channel activities at R-5, X-1 and X-2) equipment shall be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area.
- 4b.** Reclamation or its contractor shall minimize potential injury and mortality of fish during the use of low-flow channel crossings. This will be accomplished by minimizing vehicle traffic and by operating equipment and vehicles slowly and deliberately to alert and scare adult and juvenile salmonids away from the crossing area, or by having a person wade ahead of equipment to scare fish away from the crossing area.
- 4c.** To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials within the active low-flow channel, equipment shall be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. The contractor shall be instructed that before submerging an excavator bucket or laying gravel below the water surface, the excavator bucket will be operated to “tap” the surface of the water, or a person will wade ahead of fill placement equipment to scare fish away from the work area. To avoid impacts to mobile life stages of salmonids that may be present in the water column, the first

layers of clean gravel that are being placed into the wetted channel shall be added slowly and deliberately to allow fish to move from the work area

- 4d.** Monitoring of the rehabilitated floodplain sites for salmon fry stranding shall be performed by a qualified fishery biologist immediately after recession of flood flow events designated as a 1.5-year or less frequent event (i.e., $Q \geq 6,000$ cfs) for a period of 3 years following construction. Such fry stranding surveys shall be performed during the months of January through May. If substantial stranding is observed, Reclamation will take appropriate measures to return stranded fishes to river habitats and to modify floodplain topography to reduce the likelihood of future occurrences of fry stranding.

Significance after Mitigation: Less than Significant.

Impact 3.6-5: Implementation of the project would result in the permanent and temporary loss of shaded riverine aquatic habitat (SRA) for anadromous salmonids. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2.***

No-Action Alternative

Under the No-Action Alternative, loss of SRA habitat would not occur because the project would not be constructed.

Proposed Action, Alternative 1, and Alternative 2

For purposes of this EA/DEIR, riparian habitat is a general term that encompasses the range of riparian vegetation conditions within the project boundary. It does not have a specific legal description or definition. To illustrate the impacts to this habitat, a set of figures are provided at the end of this section. Figures 3.6-6a and 3.6-6b represent the impacts of the Proposed Action. Figures 3.6-7a and 3.6-7b represent the impacts of Alternative 1 and Figures 3.6-8a and 3.6-8b represent the impacts of Alternative 2.

Coho Salmon. Removal of montane riparian wetland vegetation along the banks of the Trinity River could adversely affect the quality of rearing habitats used by salmonids. Riparian vegetation is important to the maintenance of healthy fish habitat. Riparian areas provide shade and temperature benefits, sediment, nutrient and chemical regulation, stream bank stability, and inputs of large woody debris and organic matter to the channel. Riparian vegetation that is adjacent to the river, a component of SRA habitat, is included as an element of designated critical habitat for the SONCC ESU coho salmon and a component of EFH for Chinook and coho salmon. However, complexity in the riparian environment, also important in fish habitat, will be increased under the Proposed Action.

Removal of the riparian berm and re-activation of adjacent floodplains within riverine rehabilitation areas would allow for natural revegetation of most of the riparian habitat (mixture of willows, alders, and cottonwoods) estimated to be lost as a result of berm removal and floodplain contouring. Under the Proposed Action, Alternative 1, and Alternative 2, large seed trees (willow and cottonwood) and large nesting trees would be left intact. Additionally, riparian habitat removed under the Proposed Action,

Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Indian_Creek\10010 IndianCk_Fig.3.6-6a RiparianHabitat.mxd Source: NSR, Inc.; USBR; USGS 05-30-06 bmoore

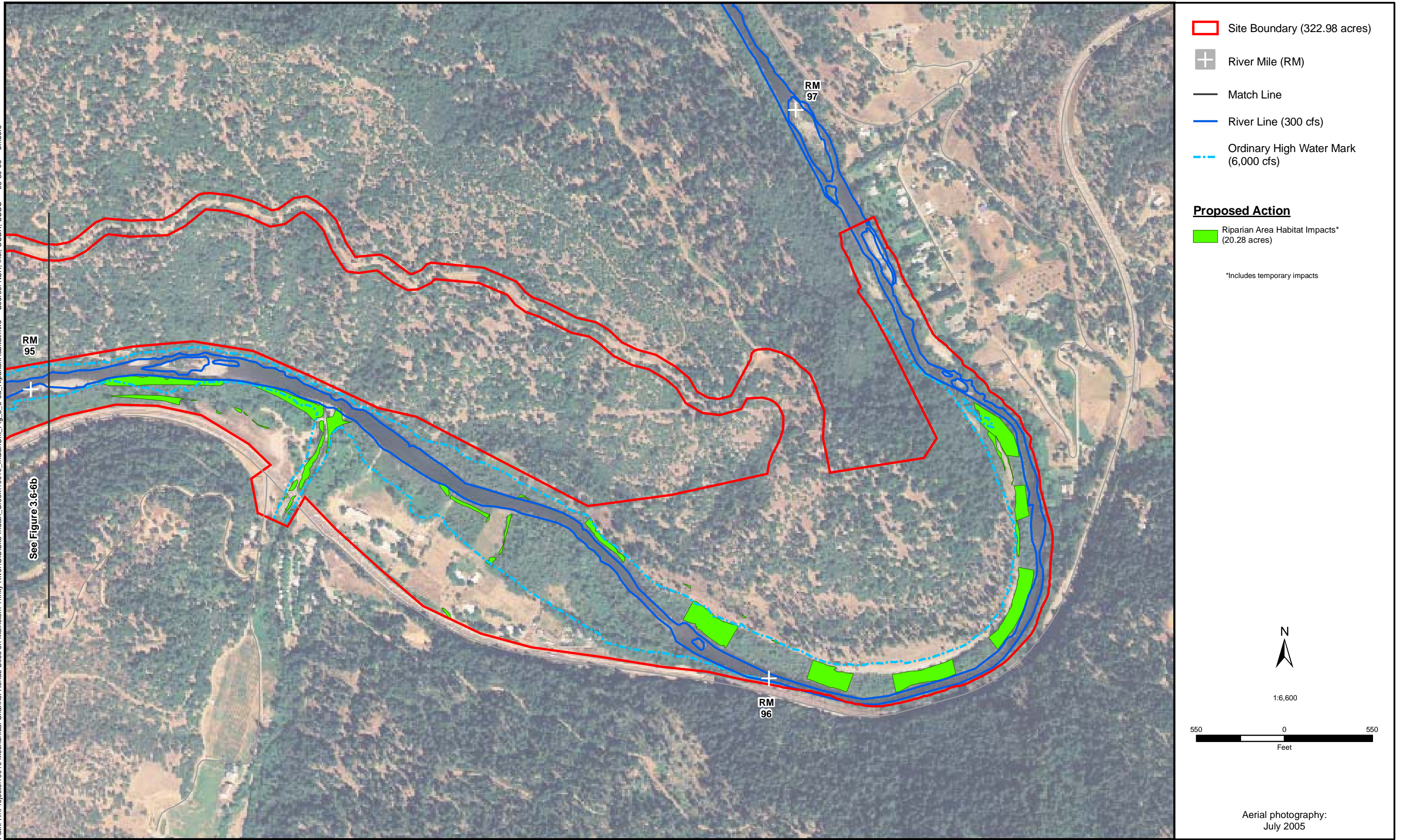


Figure 3.6-6a
Proposed Action Riparian Area Habitat

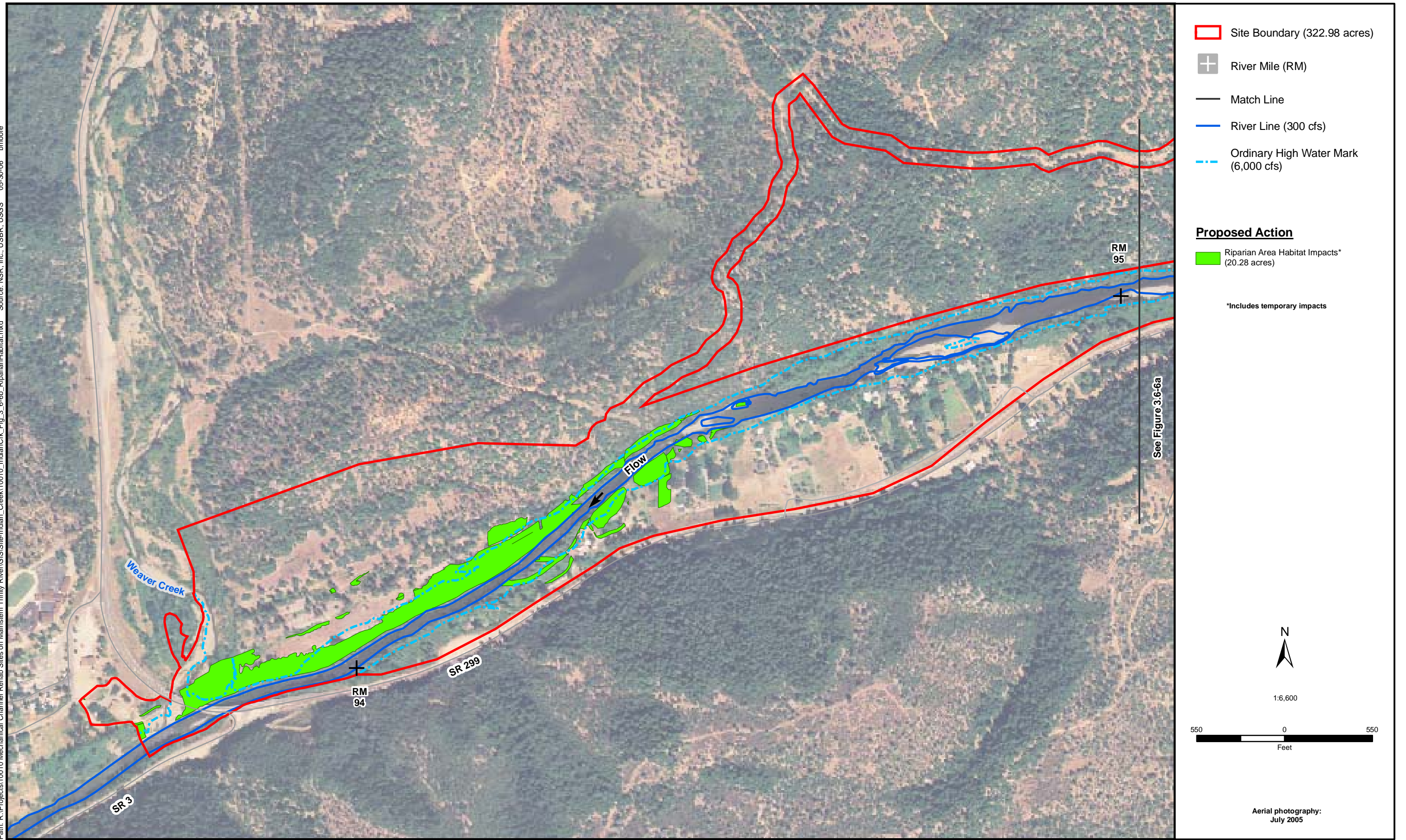
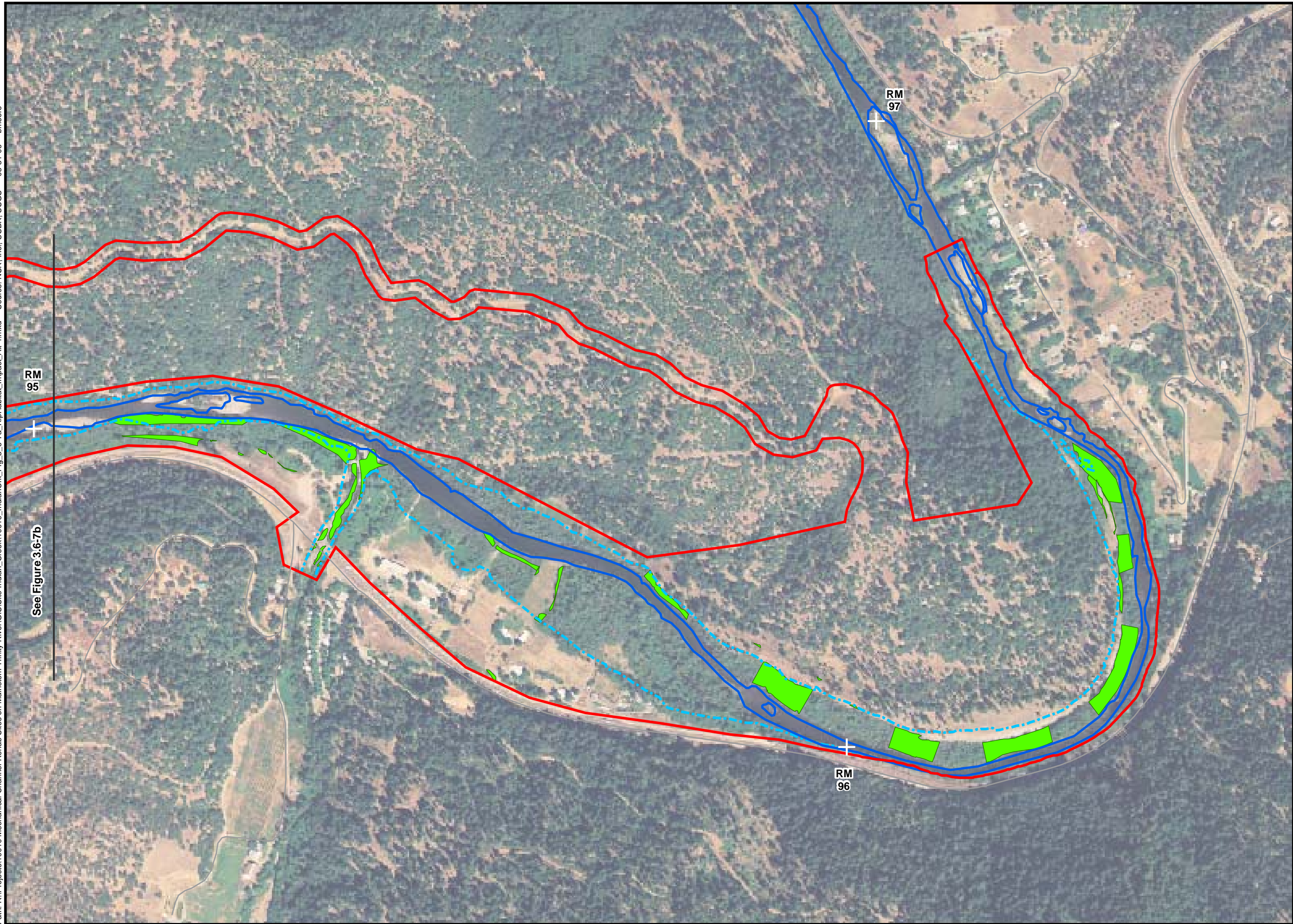


Figure 3.6-6b
Proposed Action Riparian Area Habitat

Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Indian_Creek\10010 IndianCk_Fig_3_6-7a_Riparian Impact_Alt-1.mxd Source: NSR, Inc.; USBR; USGS bmoore 05-31-06

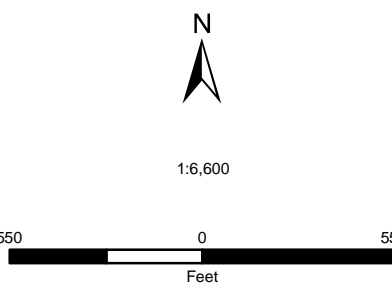


- Site Boundary (322.98 acres)
- River Mile (RM)
- Match Line
- River Line (300 cfs)
- Ordinary High Water Mark (6,000 cfs)

Alternative 1

Riparian Area Habitat Impacts* (20.26 acres)

*Includes temporary impacts



Aerial photography:
July 2005

Figure 3.6-7a
Alternative 1 Riparian Area Habitat

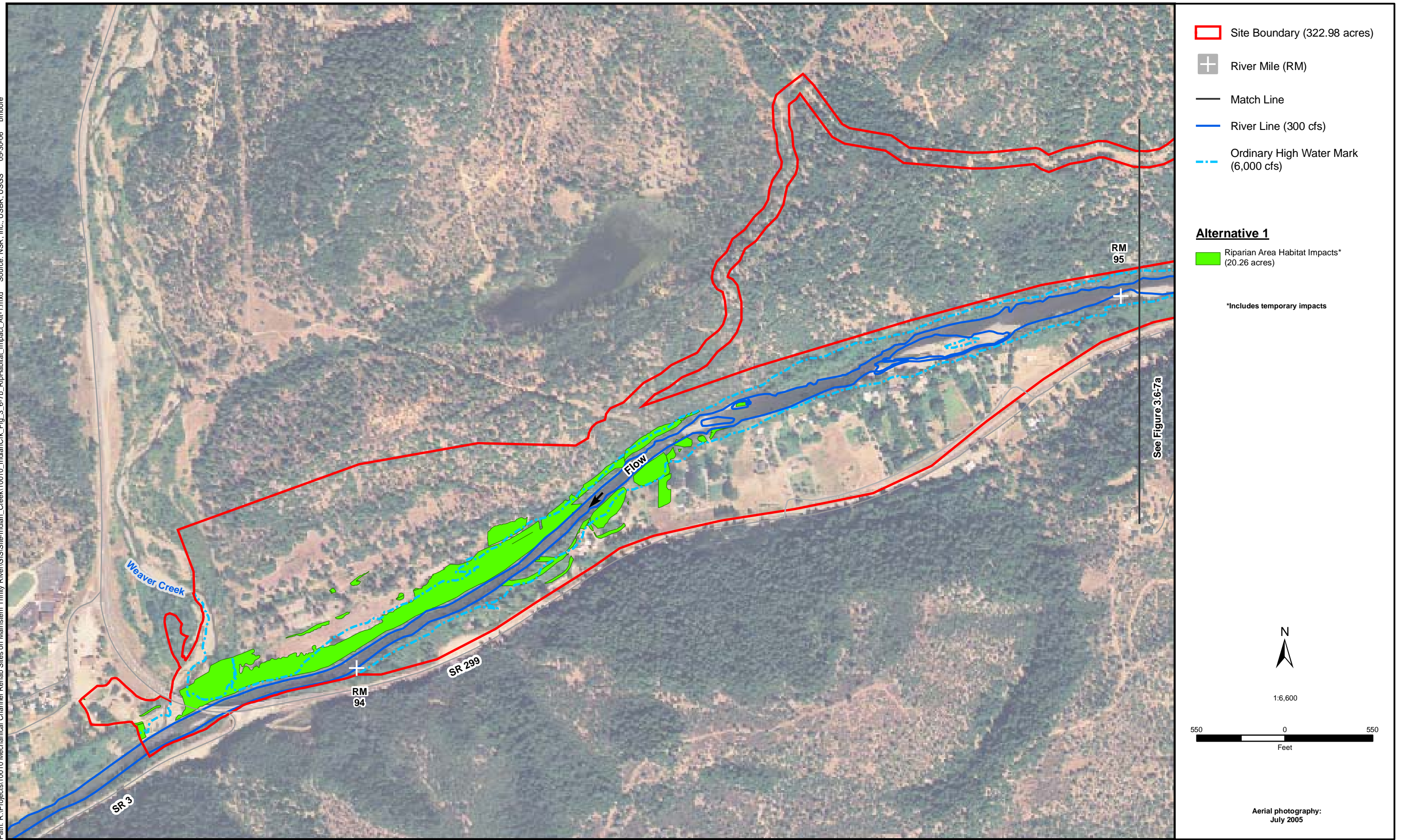


Figure 3.6-7b
Alternative 1 Riparian Area Habitat

Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Indian_Creek\10010 IndianCk_Fig.3.6-8a RiparianHabitat.mxd Source: NSR, Inc.; USBR; USGS 05-31-06 bmoore

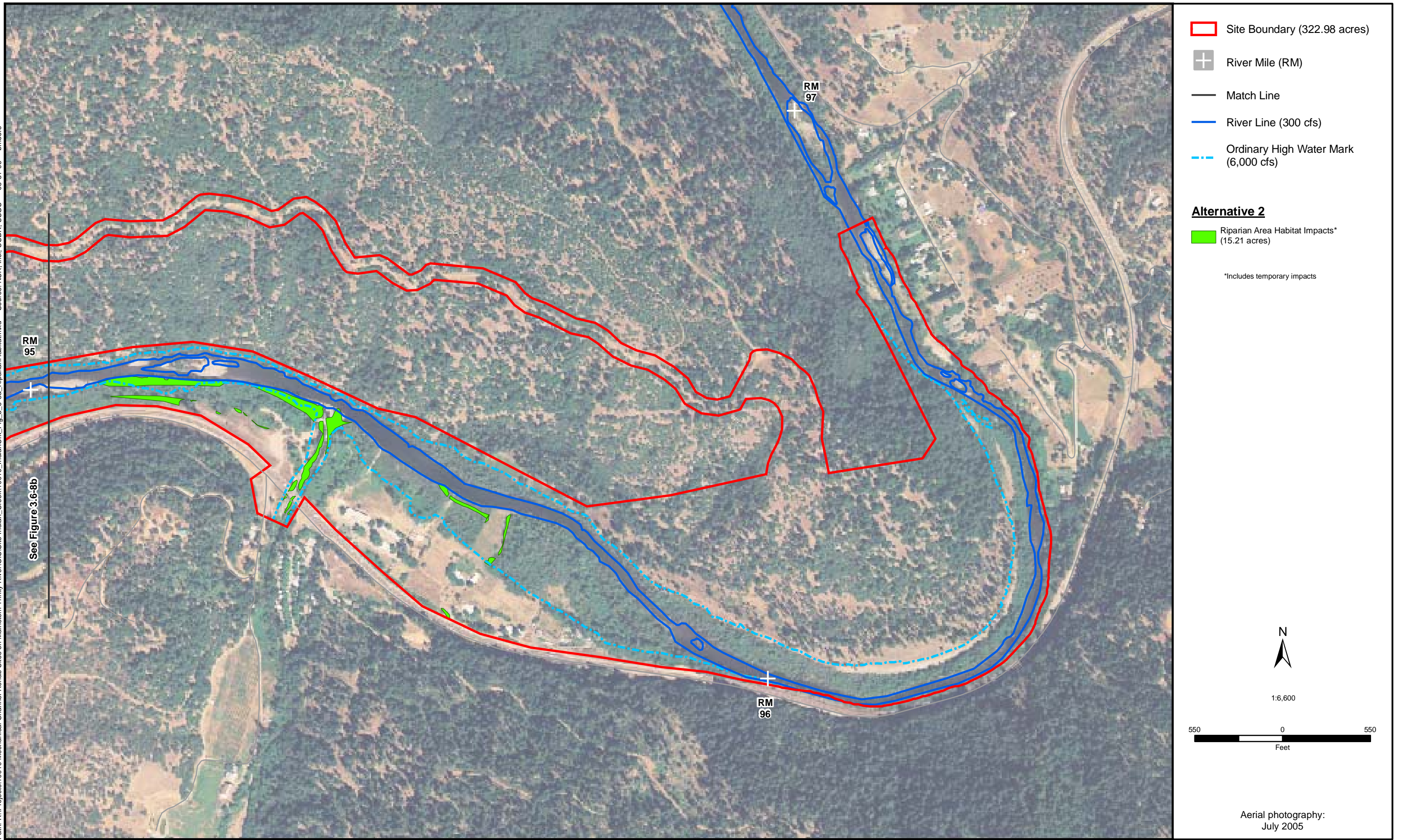


Figure 3.6-8a
Alternative 2 Riparian Area Habitat

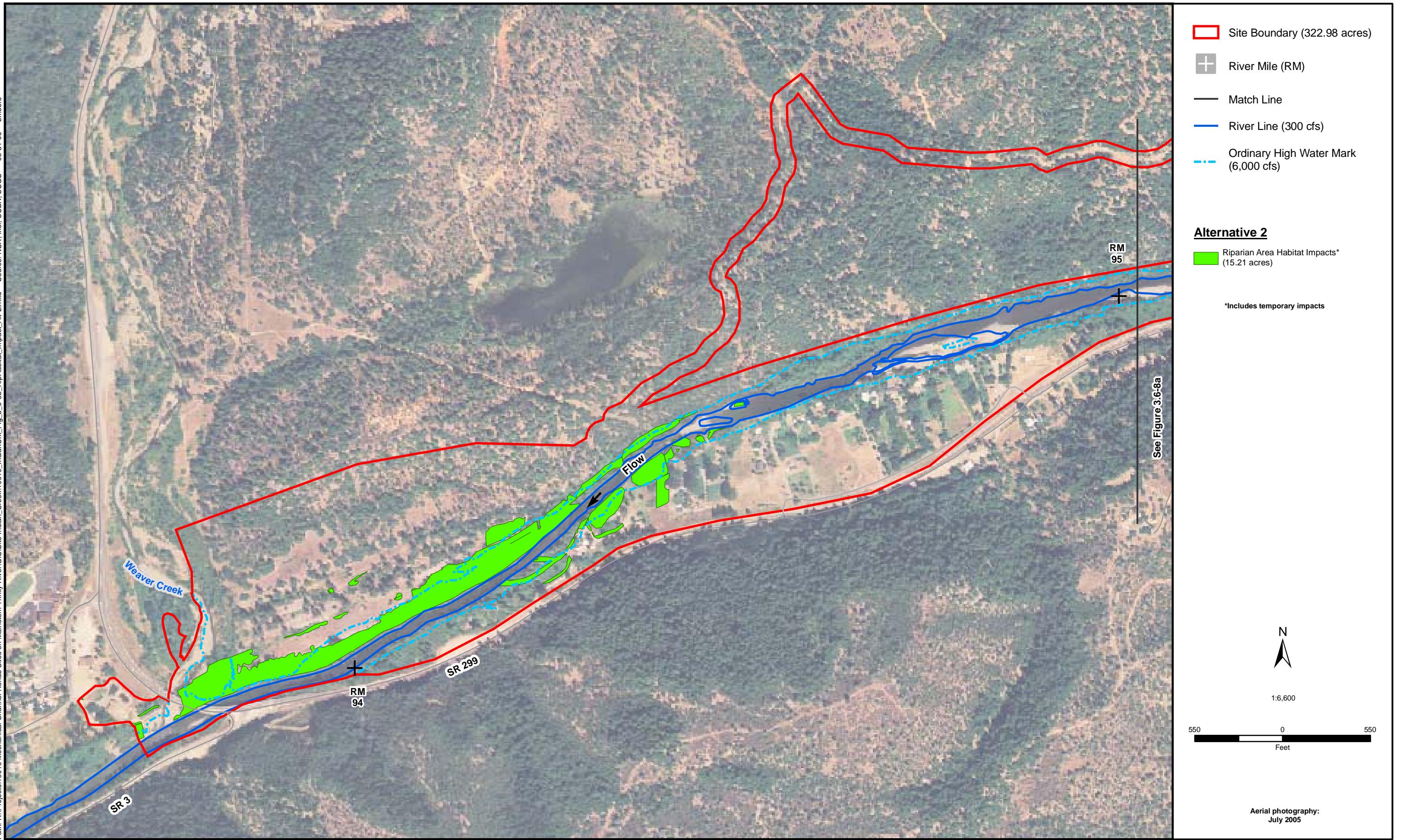


Figure 3.6-8b
Alternative 2 Riparian Area Habitat

Alternative 1, and Alternative 2 would be replaced during the revegetation efforts. Therefore, no permanent net loss of SRA features would necessarily occur.

Mitigation Measures

No-Action Alternative

Since no significant impacts were identified, mitigation is not required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

To maintain overall SRA habitat values within the project reach, the Proposed Action would be designed to minimize losses of riparian vegetation adjacent to the Trinity River channel, except where necessary to re-activate river access to the floodplain. Boundary markers shall be installed along all riparian areas outside of delineated rehabilitation areas. These markers will stop construction access so that impacts to riparian vegetation are minimized. To compensate for loss of riparian vegetation within project boundary, Reclamation shall implement the following measures:

- 5a.** To mitigate for the loss of riparian habitat, the Project would be designed to preserve riparian vegetation within the site boundaries, (1) to increase the diversity of native vegetation types and age classes available post-project and (2) to facilitate natural recolonization of constructed surfaces by native vegetation is appropriate for fish and wildlife species. Prior to the start of construction activities, Reclamation shall retain a qualified biologist to identify potential construction access routes that avoid and/or minimize, to the fullest extent, impacts to riparian habitat. In addition, Reclamation shall clearly identify and flag biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected during construction activities. Each jurisdictional riparian feature to be avoided will be flagged, staked, or otherwise marked to ensure that construction activities do not encroach upon them. Reclamation shall inspect and maintained marked areas regularly throughout the construction phase.
- 5b.** Reclamation shall develop a Riparian Revegetation and Monitoring Plan (Plan), subject to approval by the Corps, Regional Water Board and CDFG, prior to implementing the proposed project. The Plan shall include measures that insure that all riparian vegetation removed by the TRRP projects within the 40 mile corridor of the Trinity River downstream of Lewiston Dam will be replaced by natural recruitment, replanting, or any combination thereof, at an areal ratio of 1:1, within a five year time-frame. These measures shall support the TRRP objective to restore the existing homogeneous vegetation pattern with a more diverse assemblage of riparian vegetation, including provisions for incorporation of native species that can resist invasion by noxious plant species. Because the existing Trinity River channel is encroached (up to 300 percent) by a homogeneous riparian vegetation community thought to be less suitable for fish and wildlife habitat, the Plan need not require strict replacement based on original stem counts and species.
- 5c.** Reclamation shall initiate a 5-year mitigation monitoring program following the first growing season after project implementation. After a period of three years, Reclamation, in

consultation with the Corps, Regional Water Board and CDFG will be determine the need, if any, for additional plantings and will assess and/or remedy any loss of riparian habitat, including jurisdictional wetlands within the site boundaries, defined in the EIR, to ensure that no-net loss of wetlands and riparian habitat occurs within the 5-year monitoring period. Monitoring the response of riparian habitat to the channel rehabilitation project after three years into the 5-year vegetation recovery period will allow Reclamation to take any additional necessary actions to meet the goal of no net-loss of riparian habitat within the boundaries of the Canyon Creek Suite of Rehabilitation Sites.

- 5d.** Reclamation shall complete a post-project wetland delineation and vegetation habitat evaluation as a basis for comparing pre and post-project conditions and submit the results to the Corps, Regional Water Board and CDFG. In the event that this delineation identifies a net loss in riparian habitat, Reclamation shall enhance or reestablish riparian vegetation that will function as SRA habitat within the boundaries of the rehabilitation sites. Potential options to accomplish this objective include increasing the density and diversity of riparian vegetation to supplement natural recruitment, and introducing riparian plants in locations to expand riparian habitat. In the event that conditions within the boundary of the Indian Creek site preclude the adequate onsite mitigation, Reclamation may consider alternate locations for riparian vegetation mitigation within the Trinity River corridor, subject to approval by the Corp, the Regional Water Board and CDFG.

Significance after Mitigation: Less than Significant

Impact 3.6-6: Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2.***

No-Action Alternative

Under the No-Action Alternative, temporary impairment of fish passage would not occur because the project would not be constructed.

Proposed Action

Coho Salmon. Construction activities associated with the Proposed Action will require temporary placement of low-flow channel crossings, consisting of gravel fill materials, at R-2 on the Trinity River and at R-9 on the Weaver Creek delta. The crossings will be constructed in a manner that maintains adequate water depths and velocities for fish passage. The low water crossing will be used to move heavy equipment across the low-flow channels (i.e., X-1, X-2) to access restoration areas on the right bank of the Trinity River. Construction activities may require service vehicles to cross up to several times per week, otherwise vehicle crossing traffic will be kept to a minimum. Equipment operators and inspectors will use a small boat to cross the river on a routine basis.

Temporary gravel fill work ramps and a low-flow channel crossings (X-1) to access R-1, U-1 and U-2 will be constructed to extend across the width of the low-flow channel (123 feet long, 0.15 acres in area) and is expected to be in place long enough to complete work in at these activity areas. The low-flow channel crossing (X-2) adjacent to R-9 on the Weaver Creek delta will provide access to R-8, R-9, R-10,

and U-3. This crossing will span the low-flow channel of Weaver Creek (21 feet long, and 0.05 acres in area) and remain in place for the duration of the construction period. Construction in and near the active low-flow channel is planned to occur during autumn and winter months (between November 1, 2006 through Oct 15, 2007), however access in and out of the sites might be required during other low-flow times, too. Excavation work at R-5 would only be conducted during late-summer, low-flow conditions (e.g., July – September 15). River crossings at R-2 and R-9 would likely occur only during low flow conditions (Trinity River flows of < 1,500 cfs) which typically take place between July through December, but a few equipment crossings at low-flow conditions during other months (e.g., late winter/early spring) might also be required. Channel rehabilitation work planned at R-8 (and the associated crossing of Weaver Creek at R9) is scheduled for the fall/winter 2006-2007 construction period in order to provide the TRRP with flexibility to allow ROD flows of up to 11,000 cfs in spring 2007. Consequently, it is likely that some of this work would occur during the coho salmon spawning period.

In channel activities (i.e., R-5, X-1 and X-2) may occur during the onset of the fall coho smolt emigration depending on seasonal conditions (flow, temperatures, etc.), and encompasses the coho adult migration and spawning period. Upon completion of work in riverine areas requiring use of low-flow channel crossings, the low-flow channel crossings will be dismantled and gravel fill material will be contoured to the river bottom. Fill materials will consist of appropriately sized spawning gravel.

Fish passage design is typically based on swimming capability of the weakest species or life stage that requires upstream access and should accommodate the weakest individual within that group. For the Proposed Action, low-flow channel crossings will need to meet velocity criteria for upstream migrating adult and juvenile salmonids and depth criteria for migrating adult salmonids, including federally threatened coho salmon. Maximum velocities and minimum depths to be incorporated in low flow crossings are adopted from NMFS *Guidelines for Salmonid Passage at Stream Crossings* (National Marine Fisheries Service 2001) and *Part IX Fish Passage Evaluation at Stream Crossings* of CDFG's *California Salmonid Stream Habitat Restoration Manual* (California Department of Fish and Game 2003). Adult salmonids can negotiate water velocities of up to 8 to 9 feet per second (fps) without difficulty (Bjornn and Reiser 1991). However, juvenile salmonids can only typically negotiate water velocities up to 2 fps over short distances and up to about 1 fps over long distances and sustained periods (NMFS 2001); therefore, crossing designs will include criteria to accommodate these slower velocities for juvenile fish. Minimum water depth over the equipment crossings at low-flow shall not be less than 12-inches to provide adequate depth for migrating adult Chinook and coho salmon (NMFS 2001).

Although the construction period may extend into smolt emigration and coho salmon spawning season, the effect of the low water crossing on fish passage is expected to be temporary and minimal. Adult anadromous fish generally expend approximately 80 percent of their stored energy reserve during normal upstream migration to suitable spawning areas. Undue exertion or delay at stream-road crossings due to unsuccessful passage attempts at inadequate (blocking) structures can lead to reduced spawning success and pre-spawning mortality (Robison, Mirati, and Allen 1999). Adequate depth and velocities over the crossing will allow both juvenile and adult passage. The temporary impacts on fish passage are expected to be offset by the long-term beneficial changes to physical rearing habitat associated with implementing the Proposed Action.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho salmon. However, adult migrants from the spring and fall runs of Chinook salmon would be expected to pass through, stage and/or spawn within the project boundary during the construction season. The temporary placement of gravel fill low-flow channel crossings would not preclude fish passage since adequate depths and velocities will be maintained over the crossings.

Steelhead. Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho and Chinook salmon.

Pacific Lamprey. Potential fish passage impacts to Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Action would be similar to those previously described for coho and Chinook salmon and steelhead.

Alternative 1

Coho Salmon. Potential fish passage impacts to coho salmon will be less under Alternative 1, as access to R-1, U-1 and U-2 would be from a newly constructed road compared to installation of a low-flow channel crossing at X-1. Potential for delay would remain the same as the Proposed Action for in-channel work associated with the low-flow channel access crossing on Weaver Creek.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation of the Alternative 1 would be similar to those previously described for coho salmon

Steelhead. Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Alternative 1 would be similar to those previously described for coho and Chinook salmon.

Pacific Lamprey. Potential fish passage impacts to Pacific lamprey populations in the Trinity River resulting from implementation of the Alternative 1 would be similar to those previously described for coho and Chinook salmon and steelhead.

Alternative 2

Coho Salmon. Potential fish passage impacts to coho salmon will be less under Alternative 2, as activity areas R-1, U-1, U2 and X-1 are excluded. Therefore, the short-term and localized direct impacts to coho salmon from impaired fish passage would be similar to those discussed under Alternative 1.

Chinook Salmon. Potential impacts to Upper Klamath-Trinity Rivers ESU Chinook salmon populations in the Trinity River resulting from implementation of the Alternative 2 would be similar to those previously described for coho salmon

Steelhead. Potential impacts to the KMP ESU steelhead populations in the Trinity River resulting from implementation of the Alternative 2 would be similar to those previously described for coho and Chinook salmon.

Pacific Lamprey. Potential fish passage impacts to Pacific lamprey populations in the Trinity River resulting from implementation of the Alternative 2 would be similar to those previously described for coho and Chinook salmon and steelhead.

Mitigation Measures

No-Action Alternative

Since no significant impacts were identified, mitigation is not required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

- 6a.** Fill gravels used on the low water crossings, streambeds and stream banks will be composed of washed, spawning-sized gravels from a local Trinity Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass the Caltrans cleanliness test #227 with a value of 85 or greater.
- 6b.** Reclamation or its contractor shall construct the low-flow channel crossings to allow adequate depth and velocity for adult and juvenile salmonids to safely pass. Flows associated with storm events are not considered critical as the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River and Weaver Creek delta are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle and run features. For low-flow channel crossings at base flows, velocities shall not exceed 2 fps to allow for juvenile fish passage. Minimum water depth at low-flow shall not be less than 12-inches to provide adequate depth for adult salmon and steelhead passage.

3.7 Vegetation, Wildlife, and Wetlands

This section describes the vegetation, wildlife, and wetlands that are known to occur within the site boundary, and evaluates the impacts of the Proposed Action and alternatives on these resources. The discussion of biological resources is based on a focused literature review, informal consultation with resource agencies, and observations made during site visits. Vegetation communities and wildlife habitats were identified and characterized during field surveys. Fisheries resources are discussed separately in Section 3.6.

3.7.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Prior to dam construction, the natural hydrograph (record and graphical representation of discharge as a function of time at a specific location) of the Trinity River was characterized by high winter and spring flows followed by greatly reduced summer flows (with sizeable inter-year variability). Large winter and spring floods maintained multi-age woody riparian vegetation through channel scouring, periodic channel migration, and varying seed distribution during flow recession. The result was a mosaic of early-successional willow-scrub vegetation combined with patches of more mature willow-alder and alder-dominated associations.

Construction of the TRD greatly reduced the magnitude of peak flows, obstructed coarse sediment input from above the dam, and allowed fine sediment to accumulate on channel features that had previously been regularly scoured by flood flows. The result is a more static system that is susceptible to expansion and maturation of woody riparian vegetation. This has had detrimental effects, including formation of a riparian berm that effectively armors and anchors the riverbanks, thereby preventing the river from meandering within the channel. Establishment of these berms further exacerbates the encroachment and maturation of woody vegetation.

Riparian vegetation is most prevalent along the Trinity River from the Lewiston Dam to the confluence with the North Fork. This reach includes approximately 330 acres of early-successional willow-dominated vegetation; 170 acres of more mature, later-successional alder-dominated vegetation; and 380 acres of willow-alder mix (U.S. Fish and Wildlife Service et al. 1999). Between the North Fork and the South Fork, the mainstem Trinity River channel is constrained by canyon walls that limit riparian vegetation to a narrow band. In comparison to upstream reaches, peak flows in this reach have been affected only modestly by dam operations. Between the South Fork and the Klamath River, the Trinity River alternates between confined reaches with little riparian vegetation to alluvial reaches with vegetation similar to pre-dam conditions in the reach between Lewiston Dam and the North Fork. At Trinity and Lewiston Reservoirs, plant species consist of those typically found in standing water and include floating species, rooted aquatic species, and emergent wetland species. Emergent wetland and riparian vegetation is constrained by fluctuating water levels and steep banks.

Many wildlife species that inhabited river and riparian habitats prior to the TRD still occur along the Trinity River, although species that prefer early-successional stages or require greater riverine structural diversity likely occurred in greater abundance prior to the TRD. Common species present prior to the

TRD likely included the rough-skinned newt (*Taricha granulosa*), western aquatic garter snake (*Thamnophis couchi*), foothill yellow-legged frog (*Rana boylei*), western pond turtle (*Clemmys marmorata marmorata*), and American dipper (*Cinclus mexicanus*). Wildlife species that foraged on the abundant salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*) runs, including black bear (*Ursus americanus*), bald eagle (*Haliaeetus leucocephalus*), and other scavengers, were also common along the pre-dam Trinity River (U.S. Fish and Wildlife Service et al. 2000).

The post-dam flow regime established conditions that favored upland habitat at the expense of wetland and aquatic habitat. The shift in habitat types is a causative factor in the current depressed populations of aquatic, semi-aquatic, and wetland wildlife species compared to terrestrial species. Species such as the western pond turtle, an example of a semi-aquatic species, have declined since construction of the TRD in response to diminishing instream habitat. In contrast, species that favor mature, late-successional riparian habitats, such as the northern goshawk (*Accipiter gentiles*) and black salamander (*Aneides flavipunctatus*), prefer the current mature conditions (U.S. Fish and Wildlife Service et al. 2000). Impounded water in reservoirs attracts resting and foraging waterfowl and other species that favor standing or slow-moving water. The TRD reservoirs also provide important foraging habitat for eagles and other raptors that prey on fish and waterfowl.

Vegetation

Plant Communities

The following descriptions of plant community types follow the nomenclature used in Sawyer and Keeler-Wolf (1995) and A Guide to Wildlife Habitats of California (Mayer and Laudenslayer Jr. 1988), except for the foothill pine and open water categories, which are not included in either of these references. Figures 3.7-1a and 3.7-1b illustrate the locations of plant communities mapped throughout the rehabilitation site.

Twelve plant communities occur in the project area: annual grassland, barren, foothill pine, Klamath mixed conifer, mixed chaparral, montane hardwood, montane hardwood-conifer, montane riparian, open water, ponderosa pine, riverine, and urban. These communities are discussed in greater detail below. Table 3.7-1 summarizes the plant communities that occur at the site.

Note that the boundaries of the open water and riverine habitats illustrated in Figures 3.7-1a and 3.7-1b depict the boundaries of plant communities. These boundaries are not equivalent to the boundaries of waters of the United States, as defined by the Corps. Further, waters of the United States, such as seasonal wet meadow, riparian wetlands, and intermittent creeks, may occur within upland plant communities such as annual grassland. See “Jurisdictional Waters” for a more detailed discussion of these features.

Annual Grassland. The annual grassland plant community was identified at various locations throughout the site. Located adjacent to areas of riparian vegetation, this plant community is commonly dominated by introduced annual grass species, including wild oats (*Avena fatua*), soft brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), cheatgrass (*Bromus tectorum*), and hare barley (*Hordeum murinum ssp. leporinum*). Common forbs include broadleaf filaree (*Erodium botrys*), redstem filaree (*E. cicutarium*),

Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Indian_Creek\10010_IndianCk_Fig_3_7-1a_WHR.mxd Source: NSR, Inc.; USBR; USGS bmoore 03-27-06

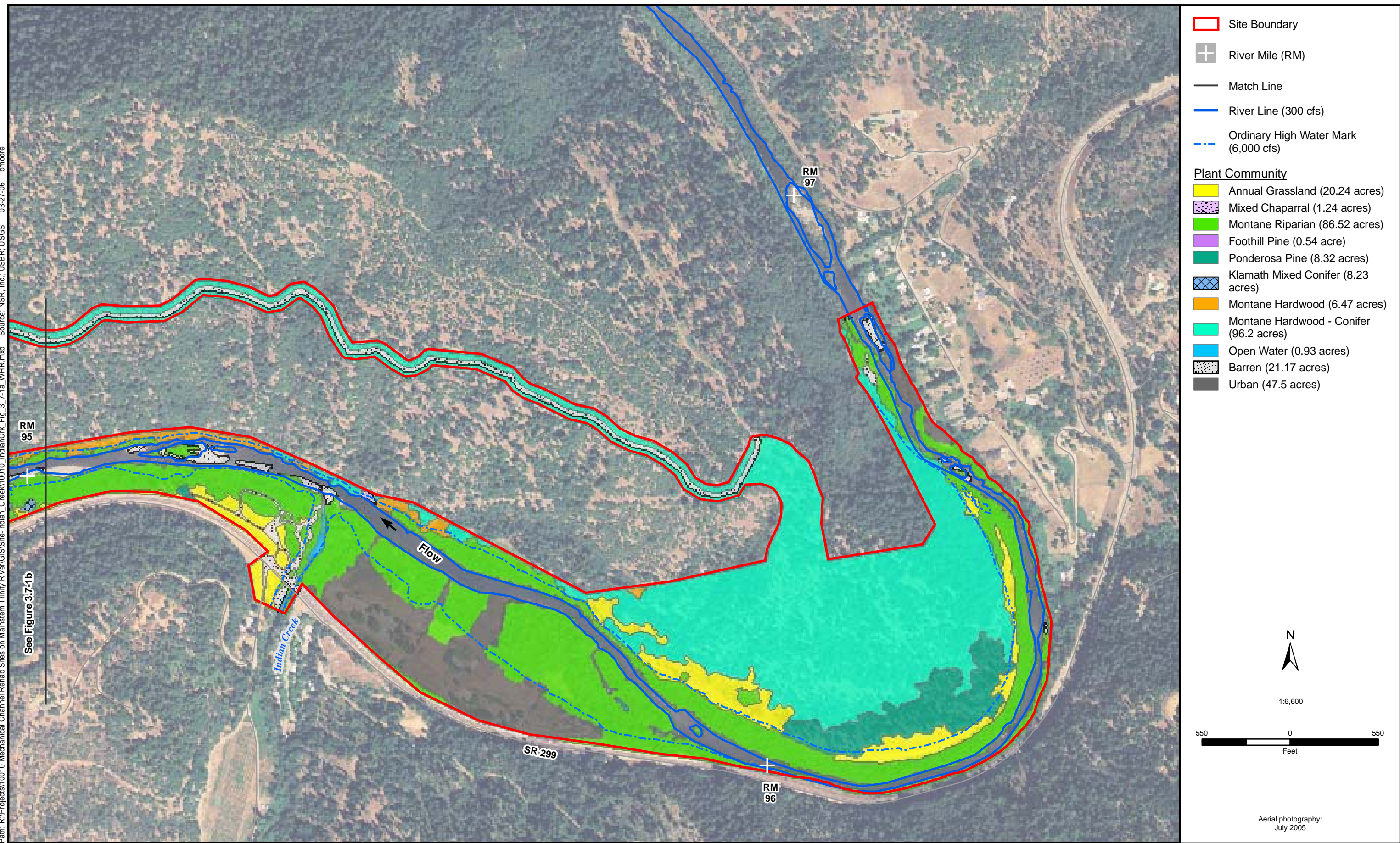


Figure 3.7-1a
Plant Community Types

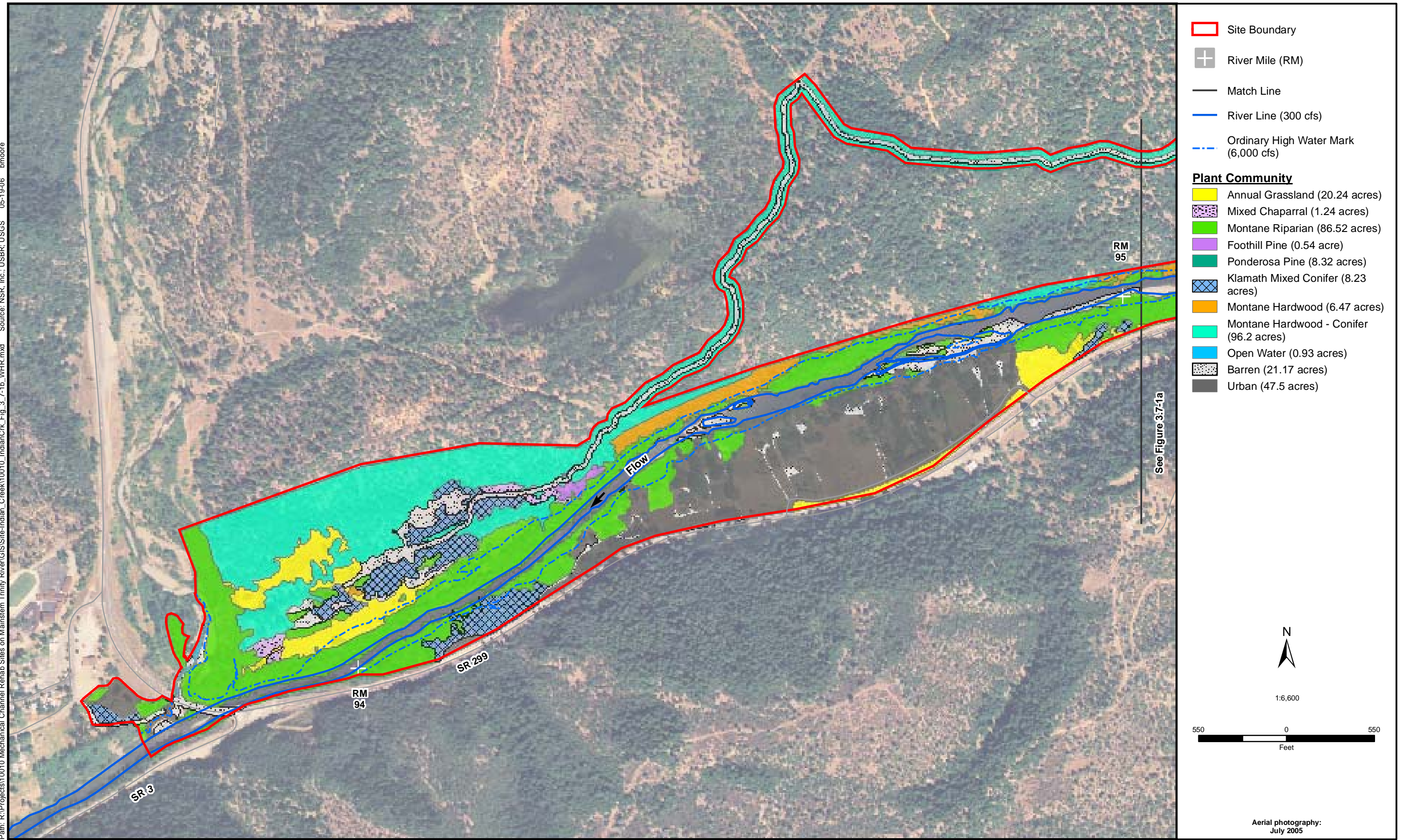


Figure 3.7-1b
Plant Community Types

California poppy (*Eschscholzia californica*), turkey mullein (*Eremocarpus setigerus*), true clovers (*Trifolium spp.*), burclover (*Medicago polymorpha*), and many others.

Barren. Barren land consists primarily of rock, pavement, and sand. Vegetation is usually not present, although sparse opportunistic grasses and forbs or weedy species may be present. Barren land occurs as gravel bars adjacent to the river and at various locations throughout the remainder of the site.

Foothill Pine. Foothill pine habitat occurs in only one location in the western portion of the site. It occurs adjacent to montane riparian, mixed chaparral, and Klamath mixed conifer plant communities. The dominant overstory species in this habitat is gray pine (*Pinus sabiniana*). Understory vegetation includes common manzanita (*Arctostaphylos manzanita*), buck brush (*Ceanothus cuneatus*), skunkbrush (*Rhus trilobata*), and poison-oak (*Toxicodendron diversilobum*). The underlying herbaceous layer includes ripgut brome, cheatgrass, and false hedge-parsley (*Torilis arvensis*).

TABLE 3.7-1
HABITAT TYPES PRESENT AT THE SITE (ACRES)

Habitat Types	Indian Creek Site (acres)
Annual grassland	20.24
Barren	21.17
Foothill pine	0.54
Klamath mixed conifer	8.23
Mixed chaparral	1.24
Montane hardwood	6.47
Montane hardwood-conifer	96.2
Montane riparian	86.52
Open water	0.93
Ponderosa pine	8.32
Riverine	27.57
Urban	47.50
TOTAL	324.93

Klamath Mixed Conifer. The Klamath mixed conifer plant community occurs at various locations in the western portion of the site. Klamath mixed conifer habitats typically are tall, dense to moderately open, needle-leaved evergreen forests with patches of broad-leaved evergreen and deciduous low trees and shrubs. This habitat is dominated by tall evergreen conifers up to 60 meters in height with a rich shrub layer and well-developed herbaceous layers. On more xeric sites, the habitat is a generally open, but very diverse, forestland having a well-developed shrub layer. The overstory layer is characterized by a mixture of conifers. Dominant conifers are white fir (*Abies concolor*) and Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*). Occasional broadleaf trees include golden chinquapin (*Chrysolepis chrysophylla*), canyon live oak (*Quercus chrysolepis*), and black oak (*Q. kelloggii*).

Mixed Chaparral. Mixed chaparral is a structurally homogeneous brushland type dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves. The dominant species in this habitat type include

greenleaf manzanita (*Arctostaphylos patula*) and buck brush. Mixed chaparral habitat occurs in small patches predominately in the western portion of the site.

Montane Hardwood-Conifer. In the northern interior of California, this plant community consists of at least one-third conifer and at least one-third broadleaf trees scattered throughout the landscape in a mosaic-like pattern of small pure stands of conifers interspersed with small stands of broad-leaved trees (Holland 1986, Mayer and Laudenslayer 1988). Geographically and biologically, this plant community often serves as an ecotone between dense coniferous forest and montane hardwood, mixed chaparral, or open woodland vegetation types.

Montane hardwood-conifer occurs at various locations throughout the site. Dominant tree species observed within this plant community include Pacific madrone (*Arbutus menziesii*), bigleaf maple (*Acer macrophyllum*), ponderosa pine (*Pinus ponderosa*), gray pine, Douglas-fir, canyon live oak, and black oak. Shrub species observed include common manzanita, buck brush, cascara (*Rhamnus purshiana*), skunkbrush, snowberry (*Symphoricarpos albus* var. *laevigatus*), and poison-oak (*Toxicodendron diversilobum*). The underlying herbaceous layer includes ripgut brome, cheatgrass, blue wild rye (*Elymus glaucus*), silver bush lupine (*Lupinus albifrons*), purple sanicle (*Sanicula bipinnatifida*), and false hedge-parsley.

Montane Hardwood. The montane hardwood plant community exists adjacent to the riverine corridor associated with the Trinity River on the north side of the site. Dominant tree species observed within this plant community include Pacific madrone, bigleaf maple, canyon live oak, and black oak. Associated shrub species observed include common manzanita, buck brush, skunkbrush, snowberry, and poison oak. The underlying herbaceous layer includes ripgut brome, cheatgrass, blue wild rye, silver bush lupine, purple sanicle, and false hedge-parsley.

Montane Riparian. The montane riparian plant community occurs along the Trinity River. This community is composed of riparian plant species that are typical for Trinity County. Dominant tree species include bigleaf maple, white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), and Goodding's black willow (*Salix gooddingii*). Understory species include mugwort (*Artemisia douglasiana*), virgin's bower (*Clematis ligusticifolia*), American dogwood (*Cornus sericea*), Oregon golden-aster (*Heterotheca oregona*), dalmatian toadflax (*Linaria genistifolia* ssp. *dalmatica*), white sweet clover (*Melilotus alba*), musk monkeyflower (*Mimulus moschatus*), straggly gooseberry (*Ribes divaricatum*), Himalayan blackberry (*Rubus discolor*), California blackberry (*R. ursinus*), narrow-leaved willow (*S. exigua*), arroyo willow (*S. lasiolepis*), shining willow (*S. lucida*), and California wild grape (*Vitis californica*).

Open Water. Open water consists of a deep-water area that exhibits perennial inundation. Vegetation is limited to the edges of these features because the water depth inhibits sunlight from reaching the bottom where vegetation would typically be rooted. Open water occurs in the channels of Indian Creek, Weaver Creek, and the Trinity River.

Ponderosa Pine. The dominant overstory species present in this habitat type is ponderosa pine. Understory vegetation includes common manzanita, buck brush, and poison oak. The underlying

herbaceous layer includes ripgut brome and cheatgrass. Ponderosa pine habitat occurs predominately in the southeastern portion of the site.

Riverine. Riverine habitat is characterized as the area including open water below the ordinary high water mark (OHWM)¹. The OHWM for purposes of this project (and displayed in Figures 3.7-1a and 3.7-1b) was based on HEC-RAS modeling the water surface elevation of a 6,000 cfs river flow as the 1.5-year recurrence flow. This modeling of the 6,000 cfs water surface matched well with standard distinguishing high water features observed in the field (e.g., driftlines and sediment deposits). Riverine habitat is dominated by run and riffle habitats, with boulder, cobble, gravel, and sand substrates. Vegetation within the active river channel is sparse, with occasional clumps of sedges. Montane riparian habitat transitions into riverine habitat along the floodplain.

Urban. Within the project area, urban habitat occurs exclusively along the left bank of the Trinity River and is primarily associated with low-density residential homes. Urban plant communities vary and consist of introduced species and/or native species associated with human development(s). Species composition varies with planting design and climate. Urban habitats are not limited to any particular physical setting.

Special-Status Plant Species

For the purposes of this evaluation, special-status plant species are vascular plants that are (1) designated as rare by the CDFG or the USFWS or are listed as threatened or endangered under the California Endangered Species Act (CESA) or the federal Endangered Species Act (ESA); (2) are proposed for designation as rare or listing as threatened or endangered; and/or (3) are state or federal candidate species for listing as threatened or endangered. Other special-status plant species are included on the California Native Plant Society (CNPS) Lists 1A, 1B, or 2 (California Native Plant Society 2001), the BLM list of sensitive species, or the USFS Region 5 list of sensitive species. Until recently, USFWS maintained a discrete list of species of concern, including special-status plant species. This list is no longer maintained and is therefore not referenced in this discussion.

Plant species designated “BLM sensitive” are not federally or state-listed as endangered or threatened, nor are they proposed or candidates for listing, but they are designated by the BLM State Director for special management consideration. The BLM Manual Section 6840 defines sensitive species as “...those species (1) that are under status review by the USFWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) that are inhabiting ecological refugia or other specialized or unique habitats.” Existing California-BLM policy concerning the designation of sensitive species identifies two conditions that must be met before a species may be considered as BLM sensitive: (1) a significant population of the species must occur on BLM-administered lands, and (2) the potential must exist for improvement of the species’ condition through BLM management. The BLM’s policy provides sensitive species with the same level of protection afforded federal candidate species.

¹The ordinary high water mark is that line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate criteria that consider the characteristics of the surrounding areas.

A USFS “sensitive species” is any species of plant that has been recognized by the Regional Forester to need special management in order to prevent it from becoming threatened or endangered. The National Forest Management Act (NFMA) requires the USFS to “provide for a diversity of plant and animal communities” [16 U.S.C. 1604(g)(3)(B)] as part of their multiple use mandate. The USFS must maintain “viable populations of existing native and desired non-native species in the planning area” (36 CFR 219.19). The Sensitive Species program is designed to meet this mandate and to demonstrate the USFS commitment to maintaining biodiversity on National Forest System lands.

A list of special-status plant species considered for the Proposed Action was compiled by performing searches of the California Natural Diversity Database (CNDDDB) and CNPS Electronic Inventory database (Appendix J), informally consulting with CDFG and USFWS, and reviewing biological literature for the project region, including the BLM special-status plants list for the Redding Field Office (U.S. Bureau of Land Management 2005). A list of federal special-status species potentially occurring in Trinity County and the *Weaverville* USGS quadrangle was obtained from the USFWS on March 13, 2006. It includes species potentially occurring in Trinity County that currently have endangered, threatened, or candidate status (Appendix E). This list identified one special-status plant species, McDonald’s rock-cress (*Arabis macdonaldiana*), as being potentially present.

The list of special-status plant species was refined based upon habitat parameters, including the habitats known to occur in the project site and the elevational limits (500 to 660 feet). Species that are known to occur in the vicinity of the project site but in habitats not present at the site were not included in the final list. Additionally, species occurring only at elevations over 2,000 feet were not included. Based on this analysis, 21 special-status plant species were identified as potentially occurring at the project site (Table 3.7-2).

Vegetation Surveys

Floristic (vegetation) inventories and special-status plant surveys were conducted April 11-15, May 2-6, and June 20-22, 2005. These surveys covered the entirety of the Indian Creek site. The botanical studies were conducted in accordance with guidelines developed by the CDFG (2000). Surveys were conducted at the appropriate season when special-status plant species were most likely to be identifiable (i.e., the blooming period). A comprehensive list of observed plant species at the site is included in Appendix K. No special-status plant species were detected at the site.

TABLE 3.7-2

SPECIAL-STATUS PLANT SPECIES CONSIDERED FOR ANALYSIS

Common Name (Scientific Name)	Status ¹ (Fed/State/ CNPS)	General Habitat	Flowering Period	Comments
Federally or State-Listed Species				
Red Mountain catchfly (<i>Silene campanulata</i> ssp. <i>campanulata</i>)	--/E/4 [†]	Chaparral and lower montane coniferous forest; usually on rocky serpentinite (1,390- 6,850 feet).	April-July	Suitable habitat occurs at the site. However, no serpentinite occurs at the site and it was not observed during protocol-level surveys.
Other Special-Status Species				
Brownish beaked-rush (<i>Rhynchospora</i> <i>capitellata</i>)	--/--/2	Meadows, marshes, swamps; moist areas in montane coniferous forest (1,490- 6,600 feet).	July- August	Suitable habitat occurs at the site. However, it was not observed during protocol- level surveys.
Bottlebrush sedge (<i>Carex hystericina</i>)	--/--/2*	Marshes, swamps, and wet places along stream banks (1,960–2,000 feet).	June	Suitable habitat occurs at the site. However, it was not observed during protocol- level surveys.
Canyon Creek stonecrop (<i>Sedum paradisum</i>)	--/--/1B [†]	Chaparral, broad-leaved upland and coniferous forests; granitic, rocky substrate (980-6,100 feet).	May-July	Suitable habitat occurs at the site. However, it was not observed during protocol- level surveys.
Clustered lady's-slipper (<i>Cypripedium</i> <i>fasciculatum</i>)	--/--/4 [†]	Coniferous forest habitat on serpentinite seeps and stream banks; a BLM Survey and Manage species (325- 7,990 feet).	March-July	Suitable habitat does not exist within the project area due to the lack of serpentine soils.
Dudley's rush (<i>Juncus dudleyi</i>)	--/--/2	Wetlands or other wet areas in lower montane coniferous forest habitat (1,490-6,560 feet).	July- August	Suitable habitat occurs at the site. However, it was not observed during protocol- level surveys.
Elongate copper-moss (<i>Mielichhoferia</i> <i>elongata</i>)	--/--/2	Cismontane woodland; grows on soil with a high content of copper and iron that is toxic for higher plants (1,600-4,300 feet).	--	Suitable habitat occurs at the site. However, it was not observed during surveys.
English Peak greenbriar (<i>Smilax jamesii</i>)	--/--/1B*	Broadleaved upland forest, lower montane coniferous forest, marshes and swamps, North Coast coniferous forest, and upper montane coniferous forests/ streambanks and lake margins (1,900-8,200 feet).	May - July	Suitable habitat occurs at the site. However, it was not observed during protocol- level surveys.
Flaccid sedge (<i>Carex leptalea</i>)	--/--/2	Marshes, swamps, wet meadows, bogs, fens, and wet places along stream banks (0–2,300 feet).	May-July	Suitable habitat occurs along the Trinity River. However, it was not observed during protocol- level surveys.
Flagella-like atractylocarpus (<i>Campylopodiella</i> <i>stenocarpa</i>)	--/--/2	Cismontane woodland (325- 1,640 feet)	--	Suitable habitat occurs at the site. However, it was not observed during protocol- level surveys.

TABLE 3.7-2
SPECIAL-STATUS PLANT SPECIES CONSIDERED FOR ANALYSIS

Common Name (Scientific Name)	Status ¹ (Fed/State/ CNPS)	General Habitat	Flowering Period	Comments
Fox sedge (<i>Carex vulpinoidea</i>)	--/--/2	Freshwater marshes, swamps, and riparian woodlands (100-4,000 feet).	May-June	Suitable habitat occurs at the site. However, it was not observed during protocol-level surveys.
Heckner's lewisia (<i>Lewisia cotyledon</i> var. <i>heckneri</i>)	--/--/1B*	Outcrops and cliffs of various rock types, often near streams or rivers, in part to full shade, usually on northern aspects (730-6,900 feet). Occurs in a variety of forest types.	May-July	Suitable habitat occurs at the site. However, it was not observed during protocol-level surveys.
Howell's lewisia (<i>Lewisia cotyledon</i> var. <i>howellii</i>)	--/--/3*	Rocky places in broadleaf upland and lower montane coniferous forests, chaparral, and cismontane woodland (490-6,600 feet).	April-July	Suitable habitat occurs at the site. However, it was not observed during protocol-level surveys.
Howell's montia (<i>Montia howellii</i>)	--/--/2 [†]	Early-successional, vernal moist habitats, often on compacted fine sediments (0-2,400 feet).	March-May	Suitable habitat occurs at the site. However, it was not observed during protocol-level surveys.
Mountain lady's-slipper (<i>Cypripedium montanum</i>)	--/--/4* [†]	Cismontane woodland and broad-leaved upland and montane coniferous forest habitat; a BLM Survey and Manage species (605-7,300 feet).	March-August	Suitable habitat occurs at the site. However, it was not observed during protocol-level surveys.
Northern clarkia (<i>Clarkia borealis</i> ssp. <i>borealis</i>)	--/--/1B* [†]	Chaparral, cismontane woodland, and lower montane coniferous forests (1,300-4,400 feet).	June-September	Suitable habitat occurs at the site. However, it was not observed during protocol-level surveys.
Oregon fireweed (<i>Epilobium oreganum</i>)	--/--/1B* [†]	Wet, gently sloping meadows, bogs, pond margins, and banks of slow-moving streams, in full sun to part shade (1,640-7,350 feet).	June-September	Suitable habitat occurs at the site. However, it was not observed during protocol-level surveys.
Stebbins' harmonia (<i>Harmonia stebbinsii</i>)	--/--/1B* [†]	Shallow, rocky, ultramafic substrates; edges between timber and brush, roadsides on gently south-facing slopes (1,300-5,200 feet).	May-July	Suitable habitat occurs at the site. However, no serpentinite occurs at the site and it was not observed during protocol-level surveys.
Thread-leaved beardtongue (<i>Penstemon filiformis</i>)	--/--/1B* [†]	Rocky openings in lower montane woodlands and coniferous forests on ultramafic substrates (1,475-6,005 feet).	June-July	Suitable habitat occurs at the site. However, no serpentinite occurs at the site and it was not observed during protocol-level surveys.
Tracy's eriastrum (<i>Eriastrum tracyi</i>)	--/R/1B [†]	Chaparral and cismontane woodland (1,030-3,200 feet).	June-July	Suitable habitat occurs at the site. However, it was not observed during protocol-level surveys.

TABLE 3.7-2
SPECIAL-STATUS PLANT SPECIES CONSIDERED FOR ANALYSIS

Common Name (Scientific Name)	Status ¹ (Fed/State/ CNPS)	General Habitat	Flowering Period	Comments
Wolf's evening primrose (<i>Oenothera wolffii</i>)	--/--/1B	Coastal habitats and lower montane coniferous forests; usually on sandy, mesic substrates (9-2,625 feet).	May- October	Suitable habitat occurs at the site. However, it was not observed during protocol- level surveys.

¹Status Codes:

Federal and State Codes:

E = Endangered; T = Threatened;

SC = Species of Concern

R = Rare

* = BLM Sensitive

† = USFWS Sensitive

CNPS Codes:

List 1B = Rare, Threatened or Endangered in CA and elsewhere

List 2 = Rare, Threatened, or Endangered in CA but common elsewhere

List 3 = More information is needed

List 4 = Limited distribution

Survey and Manage Species

At the time the technical studies for the Proposed Action were initiated, BLM was required to conduct surveys for Survey and Manage species that were specifically listed in the Northwest Forest Plan ROD (U.S. Department of Agriculture and U.S. Department of the Interior 1994). Subsequently, in 2001, the Department of Agriculture and Department of Interior issued a ROD for Amendments to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (U.S. Department of Agriculture and U.S. Department of Interior 2001). A Supplemental Environmental Impact Statement (SEIS) was prepared to examine an alternative “that replaces the Survey and Manage mitigation requirements with existing USFWS and BLM special status species programs to achieve the goals of the Northwest Forest Plan through a more streamlined process. A new ROD was issued by the agencies in March 2004 (U.S. Department of Agriculture and Department of the Interior 2004) that documented the decision to remove or modify the Survey and Manage Mitigation Measure Standards and Guidelines. As a result, the implementing agencies discontinued the Survey and Manage program and transferred selected Survey and Manage taxa to agency Special-Status Species Programs (SSSP). However, on January 11, 2006, a U.S. District Court Judge vacated the administration’s decision to eliminate the Survey and Manage standard of the Northwest Forest Plan. This decision reinstates the Survey and Manage standard.

Joe Molter, botanist for the BLM, surveyed selected sites involving federal lands associated with the project area for vascular plant species included in the Survey and Manage Standards of the Northwest Forest Plan. A list of vascular plant species with the potential to occur in the proposed area was compiled by performing an Interagency Species Management System (ISMS) Database search and reviewing the Survey Protocols for the species listed on Table 1-1 of the amended ROD of the Northwest Forest Plan (U.S. Department of Agriculture and U.S. Department of Interior 2001) and USFS and BLM visions for the 2001 Survey and Manage Annual Species Review (USDA Forest Service and Bureau of Land Management 2002). This list included two species with the potential to occur in the project area: clustered lady’s slipper and mountain lady’s slipper. Neither species was observed during the survey of the sites in 2002.

Jeanne McFarland, botanist for BLM's Arcata Field Office, conducted pre-disturbance surveys in the project area for nonvascular plants and fungi, collectively known as cryptogams, in compliance with the Northwest Forest Plan ROD. The surveys, which were conducted during the summer of 2002, consisted of a close inspection of all suitable substrates for the fungus *Bridgeoporus nobilissimus* (the only pre-disturbance Survey and Manage fungus). No Survey and Manage cryptogamic species were present within the study limits, and no appropriate habitat for these species was identified within the study limits on public lands.

Non-Native and Invasive Plant Species

Non-native and invasive plant species occur throughout the Trinity River corridor, particularly in areas that have been subject to ground-disturbing activities (e.g., roads, recreation sites). Reclamation acknowledges that these species have the potential to inhibit the TRRP's abilities to restore the functions and values associated with riparian and upland vegetation along the Trinity River. As part of the overall TRRP program, Reclamation has funded an ongoing effort to map the distribution and abundance of non-native species along the mainstem Trinity River corridor to the North Fork Trinity, and to determine the response of these non-native species to removing existing vegetation and modifying the River's flow regime. One outcome of this effort will be an initial management plan that assists Reclamation in developing a successful vegetation restoration component and provides recommendations for applied control and management of invasive species at channel rehabilitation sites. This plan will support Reclamation's desire to ensure that channel rehabilitation projects do not introduce or further spread non-native plants along the Trinity.

Weed Management Areas (WMAs) are local organizations that bring together landowners and managers (private, city, county, state, and federal) in a county, multi-county, or other geographical area to coordinate efforts and expertise against common invasive (noxious) weed species. The WMAs function under the authority of a mutually developed memorandum of understanding (MOU) and are subject to statutory and regulatory weed control requirements. The lead agency for the WMAs is the California Department of Food and Agriculture (CDFA).

The Trinity County Weed Management Cooperative (TCWMC) acts as the local Trinity County WMA. TCWMC cooperators include, but are not limited to, the Trinity County Department of Agriculture, Trinity County Planning Department, USDA Natural Resource Conservation Service (NCRS), USFS, and Trinity County Resource Conservation District (TCRCD). Trinity County has in place weed eradication programs for spotted knapweed (*Centaurea maculosa*), diffuse knapweed (*Centaurea diffusa*), dalmatian toadflax, and plumeless thistle (*Carduus acanthoides*). In addition to these species, the USFS has identified several other high-priority species that occur in close proximity to the site. These species include scotch broom (*Cytisus scoparius*) and Dyer's woad (*Isatis tinctorius*). To the extent possible, the management plan prepared for the TRRP will address all these species, will make predictions concerning project effects on local populations, and will make recommendations for minimizing further spread of invasive plant species.

Trinity County has several policies that discourage the use of synthetic herbicides for weed control. These include the following Douglas City Community Plan policy:

- Natural Resources section, page 45: As part of goal #2, to “maintain and enhance the high quality of the area’s natural resources,” there is an objective to continue and support the County policy on the use of herbicides or pesticides as a land management tool.

The Board of Supervisors has passed several resolutions declaring forest herbicides a public nuisance, as follows:

- Resolution # 45-91 – April 2, 1991: Declares that the application of forestry herbicides in Trinity County is a public nuisance and that alternatives to forestry herbicides are available that create jobs. The resolution proclaims Trinity County timberlands an herbicide-free zone and requests forest managers to not use herbicides on Trinity County timberlands.
- Resolution re-declaring the application of forest herbicides in Trinity County a public nuisance – April 7, 1997: This resolution identifies dangers associated with herbicide use and declares its use a public nuisance.
- Resolution # 2004-066 – July 20, 2004: This resolution acknowledges Trinity County’s history of concerns about spraying herbicides and reaffirms its stance that herbicides are a public nuisance and that Trinity County is an herbicide-free zone.

Over the past 20 years, the lands adjacent to SR 299/Trinity River corridor have been subjected to substantial infestations of tree of heaven, scotch broom, and Himalayan blackberry. Several factors have influenced these infestations, including a lack of historical awareness of the need to manage these species and Trinity County guidance that strongly recommends against the application of herbicides within the County boundaries.

A number of non-native and invasive plant species were observed during the botanical surveys in 2006. These species are typically opportunistic and will colonize particularly in areas of disturbance. The CDFA categorizes invasive species of concern as being an A-, B-, or C-listed plant:

- A = Eradication, quarantine, or other holding action at the state/county level.
- B = Intensive control or eradication, where feasible, at the county level.
- C = Control or eradication as local conditions warrant, at the county level.

Non-native and/or invasive plant species observed at the rehabilitation site include the A-list species dalmatian toadflax, Himalayan blackberry, and scotch broom, and the C-list species yellow star-thistle and Klamathweed.

The most apparent non-native/invasive plants at the site are Himalayan blackberry and dalmation toadflax. The known distribution of these species within the rehabilitation site is shown in Figures 3.7-2a and 3.7-2b. In addition to information collected during on-site floristic surveys, the TRRP incorporated information from the TCWMC about known populations of non-native and/or invasive plant species within or adjacent to the site.

Wildlife

Wildlife Habitats

In the project area, several plant communities, described above, occur in a complicated mosaic, providing habitat for a wide variety of wildlife species. Provided below is a discussion of wildlife habitat use in the project area. These habitats correspond to the plant communities described above.

Annual Grassland. Annual grasslands are productive wildlife habitat. Grassland bird species, such as the mourning dove (*Zenaida macroura*), savannah sparrow (*Passerculus sandwichensis*), and white-crowned sparrow (*Zonotrichia leucophrys*), as well as rodents, including the California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), California kangaroo rat (*Dipodomys californicus*), and deer mouse (*Peromyscus maniculatus*), forage on the seed crop this community provides. These species, in turn, attract predators such as the gopher snake (*Pituophis melanoleucus*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and coyote (*Canis latrans*). Reptile species expected to occur here include the western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), western rattlesnake (*Crotalus viridis*), and yellow-bellied racer (*Coluber constrictor*).

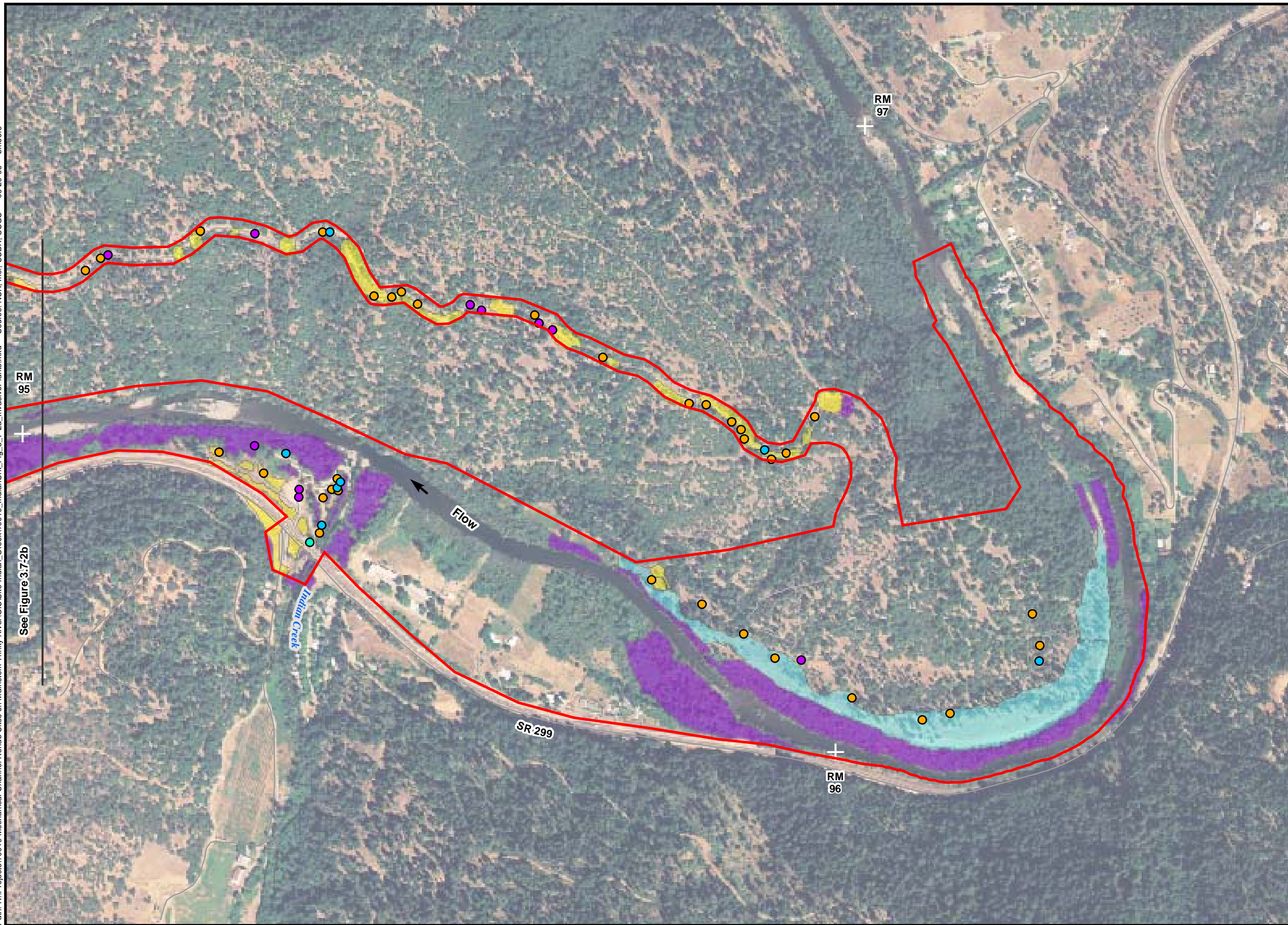
Barren. This habitat provides few resources to wildlife species. Some species associated with adjacent habitats likely forage on the bare soil on the site to some extent, and killdeer (*Charadrius vociferus*) may nest here. However, use of this habitat by wildlife is expected to be limited.

Foothill Pine. Numerous birds feed on the seeds of foothill pine, including the northern flicker (*Colaptes auratus*), Steller's jay (*Cyanocitta stelleri*), acorn woodpecker (*Melanerpes formicivorus*), and band-tailed pigeon (*Columba fasciata*). The foliage, bark, and seeds also provide food for gray squirrels (*Sciurus griseus*), and black-tailed deer (*Odocoileus hemionus columbianus*) browse the foliage and twigs.

Klamath Mixed Conifer. Klamath mixed conifer habitat provides a wide array of nesting and foraging opportunities for wildlife. Species commonly found in this habitat include the mountain quail (*Oreotyx pictus*), hairy woodpecker (*Picoides villosus*), sharp-shinned hawk (*Accipiter striatus*), western gray squirrel, and gray fox (*Urocyon cinereoargenteus*). The leaf litter also provides habitat for the California kingsnake (*Lampropeltis zonata*), and ensatina (*Ensatina eschscholtzii*).

Mixed Chaparral. Mixed chaparral provides habitat for a wide variety of wildlife species. In addition, it provides singing, roosting, and nesting sites for many species of birds, including the California quail (*Callipepla californica*), wrentit (*Chameae fasciata*), and Bewick's wren (*Thryomanes bewickii*). Mammals common in this habitat include the black-tailed jack rabbit (*Lepus californicus*), gray fox, coyote, and deer mouse. Reptiles that make use of this habitat include the western fence lizard and southern alligator lizard (*Elgaria multicarinata*).

Montane Hardwood. Mast crops provided by montane hardwood forests are an important resource for many species, including the acorn woodpecker, Steller's jay, mountain quail, western gray squirrel, and black-tailed deer. In addition, cavities in mature trees provide nesting and denning habitat for species such as the northern flicker, western screech owl (*Otus kennicottii*), American kestrel, and Virginia



- Site Boundary
- River Mile (RM)
- Match Line

Plant Species

Isolated Stands

- Black locust
- Canada thistle
- Dalmatian toadflax
- Himalayan blackberry
- Klamathweed
- Scotch broom
- Tree-of-Heaven

Consolidated Stands

- Black locust (0.03 acre)
- Dalmatian toadflax (18.52 acres)
- Himalayan blackberry (41.83 acres)
- Klamathweed (0.72 acre)
- Yellow star-thistle (9.9 acres)

Note: Some areas were not surveyed due to steepness of terrain or no access to private property.

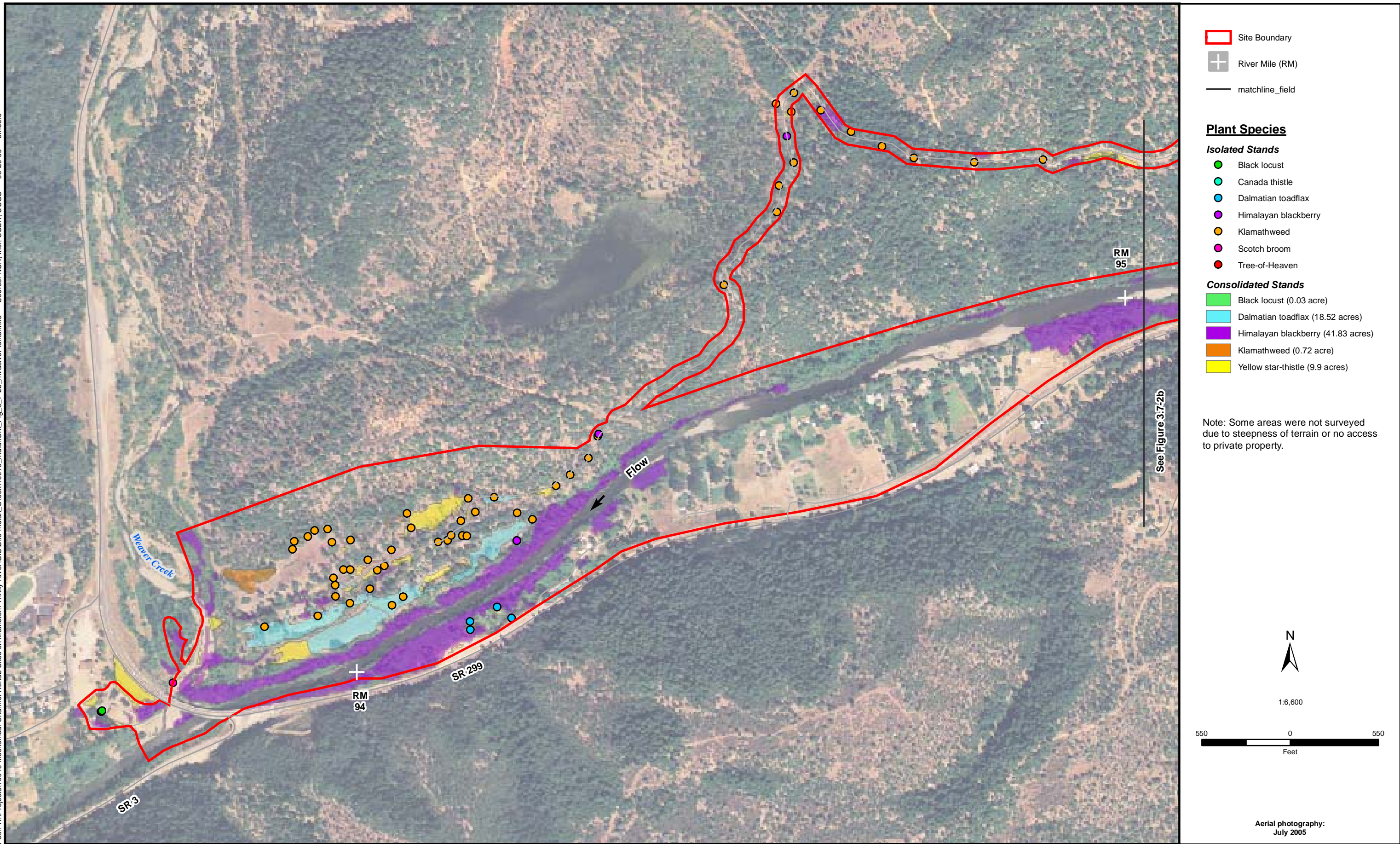


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Aerial photography:
July 2005

Figure 3.7-2a
Non-native and Invasive Plant Species



Indian Creek Rehabilitation Site: Trinity River Mile 93.7 to 96.5

Figure 3.7-2b
Non-native and Invasive Plant Species

opossum (*Didelphis virginiana*). In moist areas, many amphibians are found in the detrital layer, including ensatina and western skinks.

Montane Hardwood-Conifer. The variability of the canopy cover and understory vegetation makes montane hardwood-conifer communities suitable for numerous species of wildlife. Hollow trees and logs provide denning sites for mammals such as the coyote, while cavities in mature trees are used by cavity-dwelling species such as the acorn woodpecker, violet-green swallow (*Tachycineta thalassina*), northern flicker, great horned owl (*Bubo virginianus*), raccoon (*Procyon lotor*), and pallid bat (*Antrozous pallidus*). In addition, raptors, such as the red-tailed hawk, construct nests in the upper canopy of mature trees. Moreover, mast crops and conifer seeds are an important food source for many birds as well as mammals, including the Steller's jay, acorn woodpecker, California quail, black-tailed deer, and western gray squirrel. In moist areas, many amphibians are found in the detrital layer, including ensatina and western fence lizards. Snakes, including the western rattlesnake and sharp-tailed snake (*Contia tenuis*), also occur in this community.

Montane Riparian. Riparian woodlands represent some of the most important wildlife habitats due to their high floristic and structural diversity, high biomass (and therefore high food abundance), and high water availability. In addition to providing breeding, foraging, and roosting habitat for a diverse array of animals, riparian habitats also provide movement corridors for some species, connecting a variety of habitats throughout a region.

The leaf litter, fallen tree branches, and logs associated with the riparian communities in the project area provide cover for the western toad (*Bufo boreas*) and Pacific chorus frog (*Pseudacris regilla*). The western fence lizard, western skink, and southern alligator lizard are also expected to occur here. Common species nesting and foraging primarily in the riparian tree canopy include the tree swallow (*Tachycineta bicolor*), bushtit (*Psaltirparus minimus*), white-breasted nuthatch (*Sitta carolinensis*), and Nuttall's and downy woodpeckers (*Picoides nuttallii* and *Picoides pubescens*, respectively). Other resident species, such as the spotted towhee (*Pipilo maculatus*) and song sparrow (*Melospiza melodia*), nest and forage on or very close to the ground, usually in dense vegetation. A variety of mammals also occur in riparian communities, including the deer mouse, raccoon, and Virginia opossum.

Open Water. Open water provides foraging habitat to waterfowl, such as the mallard (*Anas platyrhynchos*) and Canada goose (*Branta canadensis*). In addition, black phoebes (*Sayornis nigricans*), tree swallows, and other birds and bats that feed on insects over water sources likely forage over open water. Further, it provides habitat for amphibians and reptiles such as the western toad, Pacific chorus frog, and common garter snake (*Thamnophis sirtalis*).

Ponderosa Pine. Ponderosa pine needles, cones, buds, pollen, twigs, seeds, and associated fungi and insects provide food for many species of birds and mammals, including the mountain quail, western gray squirrel, black-tailed deer, and Allen's chipmunk (*Tamias senex*), and the needles are eaten by blue grouse (*Dendragapus obscurus*). Mature trees provide nesting habitat for raptors, such as the sharp-shinned hawk and red-tailed hawk, while snags and hollow logs provide shelter for species such as the Virginia opossum and western spotted skunk (*Spilogale gracilis*).

Riverine. The Trinity River provides potential habitat for several native and introduced fish species (see Section 3.6). Amphibians and reptiles expected to occur here include the Pacific chorus frog, western toad, bullfrog (*Rana catesbeiana*), and western pond turtle. In addition, birds such as the mallard, great blue heron (*Ardea herodias*), osprey (*Pandion haliaetus*), and belted kingfisher (*Ceryle alcyon*) may forage here. Mammals expected to occur in this habitat include the river otter (*Lutra canadensis*) and beaver (*Castor canadensis*), and bats, including the Yuma bat (*Myotis yumanensis*) and big brown bat (*Eptesicus fuscus*), forage above this habitat during summer evenings.

Urban. The wildlife species most often associated with urban areas are those that are most tolerant of periodic human disturbances, including several introduced species, such as European starlings (*Sturnus vulgaris*), rock doves (*Columba livia*), and house mice (*Mus musculus*). Native species that are able to use these habitats include the western fence lizard, American robin (*Turdus migratorius*), Brewer's blackbird (*Euphagus cyanocephalus*), northern mockingbird (*Mimus polyglottos*), mourning dove, house finch (*Carpodacus mexicanus*), California ground squirrel, black-tailed jackrabbit, and western spotted skunk. Bats that forage in nearby habitats may make use of small cavities around the eaves of structures.

Special-Status Wildlife Species

For the purposes of this evaluation, special-status wildlife species include species that are (1) listed as threatened or endangered under the CESA or ESA; (2) are proposed or petitioned for federal listing as threatened or endangered; and/or (3) are state or federal candidates for listing as threatened or endangered. Other special-status wildlife species are identified by the CDFG as Species of Special Concern or California Fully Protected Species, and/or are designated as BLM or USFWS sensitive.

A list of special-status wildlife species considered for analysis in this environmental document was compiled by performing a CNDDB database search (Appendix J), conducting informal consultations with the CDFG and USFWS, and reviewing biological literature for the general area. Habitat information for special-status wildlife species was excerpted from:

- the California Department of Fish and Game, Habitat Conservation Planning Branch website: <http://www.dfg.ca.gov/hcpb/species/species.shtml>
- Amphibian and Reptile Species of Special Concern in California (Jennings and Hayes 1994)
- California's Wildlife, Volume II: Birds (Zeiner et al. 1990a)
- California's Wildlife, Volume III: Mammals (Zeiner et al. 1990b)
- California Wildlife Habitat Relationships Program, Version 8.0 (California Department of Fish and Game 2002).

The special-status animal species that occur in the project vicinity are described in Table 3.7-3 and more detailed species accounts are provided in Appendix L. Federal and state status designations, general habitat requirements, and information on each species' potential occurrence at the site (based on its distributional range and available habitat) are also provided in the table. Conclusions presented in this table are based on the knowledge of local professional biologists and historic survey information.

TABLE 3.7- 3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR ANALYSIS

Common Name (Scientific Name)	Status ¹ (Fed/State)	General Habitat Description	Present at Project Site?
Federally or State-Listed Species			
Trinity bristle snail (<i>Monadenia setosa</i>)	--/T	Riparian corridors and canyon slopes with dense deciduous understory in Trinity County.	Absent. Species was not detected during protocol-level surveys of the site in 2006
California red-legged frog (<i>Rana aurora draytonii</i>)	T/SC	Requires aquatic habitat for breeding; also uses a variety of other habitat types, including riparian and upland areas.	Absent. Site is outside the known range of this species.
American peregrine falcon (<i>Falco peregrinus anatum</i>)	--/E, FP	Forages in many habitats; requires cliffs for nesting.	Absent as breeder. Site lacks suitable nesting habitat, but may occur as forager.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	T/E	Uncommon to common in riverine and open wetland habitats. Requires large bodies of water or free flowing rivers with abundant fish for foraging. Nests in large, live trees that are usually near water and free from human disturbance. Roosts communally in winter in dense, remote conifer stands.	Absent as breeder. Suitable nesting habitat is not present at the site due to the lack of dense, large trees and the moderate level of human disturbance. However, the species was observed in the project area during surveys in 2005 (Herrera 2006) and may forage at the site.
Bank swallow (<i>Riparia riparia</i>)	--/T	Colonial nester on vertical banks or cliffs with fine-textured soils and near water.	Absent. The project area does not contain suitable habitat.
Little willow flycatcher (<i>Empidonax traillii brewsteri</i>)	--/E ⁺	Rare summer resident in wet meadow and montane riparian habitats at 2,000 to 8,000 feet elevation.	May be Present. Suitable habitat is present and willow flycatchers were observed in the study area during the 2005 breeding season (Herrera 2006).
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	T/E	Marine subtidal and pelagic habitats; requires dense, mature forests of redwood and Douglas-fir for breeding.	Absent. Site is outside the known range of this species.
Northern spotted owl (<i>Strix occidentalis caurina</i>)	T/--	In northern California, resides in large stands of old growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats	Absent. Suitable habitat is not present in the project area and it was not detected during general bird surveys in 2003-2005 (Herrera 2006).
Western yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	C/E ⁺	Occurs only along the upper Sacramento Valley portion of the Sacramento River, the Feather River in Sutter County, the South Fork of the Kern River in Kern County, and along the Santa Ana, Amargosa, and lower Colorado rivers in cottonwood/willow riparian forest.	Absent. Project area is outside the currently known range of this species.

TABLE 3.7- 3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR ANALYSIS

Common Name (Scientific Name)	Status ¹ (Fed/State)	General Habitat Description	Present at Project Site?
California wolverine (<i>Gulo gulo luteus</i>)	--/T, FP [†]	A variety of habitats within the elevations of 1,600 and 14,200 feet. Most commonly inhabits open terrain above timberline.	Absent. The project area is below the elevation range of this species.
Pacific fisher (<i>Martes pennanti pacifica</i>)	C/SC* [†]	Dens and forages in intermediate to large stands of old-growth forests or mixed stands of old-growth and mature trees with greater than 50% canopy closure. May use riparian corridors for movement.	May be present. Not expected to breed on the site but it may use the Trinity River as a travel corridor. The species has been recorded within 1 mile of the site (California Department of Fish and Game 2005).
Other Special-Status Species			
Cascades frog (<i>Rana cascadae</i>)	--/SC [†]	Open coniferous forests along the sunny, rocky banks of ponds, lakes, streams, and meadow potholes. From 2,600 to 9,000 feet elevation in Cascades and Trinity mountains.	Absent. The rehabilitation site is below the known elevational range of this species.
Foothill yellow-legged frog (<i>Rana boylei</i>)	--/SC* [†]	Cool, fast-moving, rocky streams in a variety of habitats.	May be present. Known to occur in Indian Creek to the confluence with the Trinity River (Don Ashton, pers. comm.).
Tailed frog (<i>Ascaphus truei</i>)	--/SC	Clear, rocky, swift, cool perennial streams in densely forested habitats.	May be present. Suitable habitat occurs in the project area.
Northwestern pond turtle (<i>Clemmys marmorata marmorata</i>)	--/SC [†]	Slow water aquatic habitat with available basking sites. Hatchlings require shallow water with dense submergent or short emergent vegetation. Require an upland oviposition (egg laying) site in the vicinity of the aquatic site.	May be present. Riverine and riparian habitats along the Trinity River provide suitable habitat, and the species has been observed in the project area (Herrera 2006).
Black swift (<i>Cypseloides niger</i>)	--/SC	Nests in moist crevices or caves or sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons; forages widely over many habitats.	Absent as breeder. Project area does not provide suitable breeding habitat; however, may forage over the site as a migrant.
California yellow warbler (<i>Dendroica petechia brewsteri</i>)	--/SC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	May be present. Montane riparian habitat at the site provides suitable nesting and foraging habitats and the species has been observed in the project area during the breeding season (Herrera 2006).
Cooper's hawk (<i>Accipiter cooperii</i>)	--/SC	Nests in woodlands; forages in many habitats in winter and during migration.	May be present. Suitable nesting and foraging habitat is present in the project area, and the species has been observed in the project area (Herrera 2006).

TABLE 3.7- 3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR ANALYSIS

Common Name (Scientific Name)	Status¹ (Fed/State)	General Habitat Description	Present at Project Site?
Golden eagle (<i>Aquila chrysaetos</i>)	--/SC, FP	Breeds on cliffs or in large trees or electrical towers, forages in open areas.	Absent as breeder. Suitable nesting habitat is absent from the site; however, the species may occur as a forager.
Merlin (<i>Falco columbarius</i>)	--/SC	Uses many habitats in winter and during migration.	Absent as breeder. Rehabilitation site is outside the breeding range of this species; however, it may occur as a migrant.
Northern goshawk (<i>Accipiter gentiles</i>)	--/SC [†]	Breeds in dense, mature conifer and deciduous forests, interspersed with meadows, other openings and riparian areas; nesting habitat includes north-facing slopes near water.	May be present. Suitable nesting and foraging habitat is present.
Osprey (<i>Pandion haliaetus</i>)	--/SC	Ocean shorelines, lake margins, and large, open river courses for both nesting and wintering habitat.	May be present. Suitable nesting and foraging habitat is present. An individual carrying nesting material was observed in the project area in 2005 (Herrera 2006); however, no nests have been observed in the area.
Ruffed grouse (<i>Bonasa umbellus</i>)	--/SC	Valley foothill riparian and surrounding conifer forests at low to middle elevations.	May be present. The combination of conifer and riparian areas at the site provides suitable nesting and foraging habitat.
Sharp-shinned hawk (<i>Accipiter striatus</i>)	--/SC	Nests in dense woodlands, typically on north facing slopes near water. Forages in many habitats in winter and during migration.	May be present. Suitable nesting and foraging habitat is present in the project area, and the species has been observed in the project area (Herrera 2006).
Vaux's swift (<i>Chaetura vauxi</i>)	--/SC	Prefers redwood and Douglas-fir habitats; nests in hollow trees and snags or, occasionally, in chimneys; forages aerially.	Absent as breeder. Suitable breeding habitat is present, and the species was observed in the study area during surveys (Herrera 2006).
Yellow-breasted chat (<i>Icteria virens</i>)	--/SC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.	May be present. Montane riparian areas provide suitable nesting and foraging habitat, and the species has been observed in the area during the breeding season (Herrera 2006).
Fringed myotis (<i>Myotis thysanodes</i>)	--/--*	In mesic habitats, roosts in caves, mines, tunnels, and buildings. Roosts typically in valley foothill hardwood and hardwood-conifer habitats, but forages in open, early-successional-stage habitats near water. Generally at 4,000-7,000 feet.	Absent. The project area is outside the elevation range for this species.

TABLE 3.7- 3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR ANALYSIS

Common Name (Scientific Name)	Status ¹ (Fed/State)	General Habitat Description	Present at Project Site?
Long-eared myotis (<i>Myotis evotis</i>)	--/--*	Found in most habitats, but prefers coniferous woodlands. Roosts in buildings, crevices, spaces under bark, and in snags. Forages among trees and over brush, usually in close association with water.	May be present. Suitable roosting and foraging habitat is present at the site.
Oregon snowshoe hare (<i>Lepus americanus klamathensis</i>)	--/SC	Occurs in montane riparian areas with thickets of deciduous trees and dense conifer thickets in Cascade and Trinity mountains. In northern California, occurs only in areas that have snow in the winter (California Department of Fish and Game 1986).	Absent. Suitable habitat not present in project area.
Pallid bat (<i>Antrozous pallidus</i>)	--/SC*†	Forages over many habitats; roosts in buildings, large oaks or redwoods, rocky outcrops and rocky crevices in mines and caves.	May be present. Suitable roosting and foraging habitat is present within the project area.
Ring-tailed cat (<i>Bassariscus astutus</i>)	--/FP	Occurs in riparian habitats and brush stands of most forest and shrub habitats. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests.	May be present. Montane riparian areas provide suitable breeding and foraging habitat.
Small-footed myotis (<i>Myotis ciliolabrum</i>)	--/--*	Occurs in a wide variety of habitats, primarily in relatively arid wooded and brushy uplands near water from sea level to 8,900 feet. Forages in arid upland grasslands, open woodlands, and over water. Roosts in caves, mines, buildings, bridges, rock crevices, and under tree bark.	Absent. The project area is outside the currently known range of this species.
Townsend's western big-eared bat (<i>Corynorhinus townsendii</i>)	--/SC*†	Roosts in colonies in caves, mines, tunnels, or buildings in mesic habitats. Forages along habitat edges, gleaning insects from bushes and trees. Habitat must include appropriate roosting, maternity, and hibernacula sites free from disturbance by humans.	May be present. Site does not contain suitable roosting habitat; however, the species may be present as a forager.

TABLE 3.7- 3
SPECIAL-STATUS WILDLIFE SPECIES CONSIDERED FOR ANALYSIS

Common Name (Scientific Name)	Status ¹ (Fed/State)	General Habitat Description	Present at Project Site?
Yuma myotis (<i>Myotis yumanensis</i>)	--/--*	Forages over water such as ponds, streams and stock tanks in open woodlands. Roosts in buildings, caves, mines, abandoned swallow nests, bridges, and rock crevices. Common and widespread in California.	May be present. Site contains suitable breeding and foraging habitat.

¹Status Codes:

Federal and State Codes: E = Endangered; T = Threatened; C = Candidate; SC = Species of Special Concern (State);

FP = California Fully Protected species

* = BLM Sensitive

† = USFWS Sensitive

Some of the species listed in Table 3.7-3 are not expected to occur in the project area because of a lack of suitable habitat or because the project site is outside the known distributional range of the species. These species include the California red-legged frog (*Rana aurora draytonii*), Cascades frog (*Rana cascadae*), marbled murrelet (*Brachyramphus marmoratus*), western yellow-billed cuckoo (*Coccyzus americanus*), bank swallow (*Riparia riparia*), California wolverine (*Gulo gulo luteus*), Oregon snowshoe hare (*Lepus americanus klamathensis*), small-footed myotis (*Myotis ciliolabrum*), and fringed myotis bat (*Myotis thysanodes*). Some special-status species may occur on the site only as uncommon to rare visitors, migrants, or transients, but are not expected to breed there. These species include the American peregrine falcon (*Falco peregrinus anatum*), black swift (*Cypseloides niger*), bald eagle, golden eagle (*Aquila chrysaetos*), merlin (*Falco columbarius*), Townsend's western big-eared bat (*Corynorhinus townsendii*), and Pacific fisher (*Martes pennanti pacifica*).

Special-status species that may breed in the project area include the foothill yellow-legged frog, tailed frog (*Ascaphus truei*), northwestern pond turtle, California yellow warbler (*Dendroica petechia brewsteri*), yellow-breasted chat (*Icteria virens*), little willow flycatcher (*Empidonax traillii brewsteri*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk, northern goshawk, osprey (*Pandion haliaetus*), pallid bat, long-eared myotis bat (*Myotis evotis*), Yuma myotis bat (*Myotis yumanensis*), and ring-tailed cat (*Bassariscus astutus*).

Wildlife Surveys

Personnel from the USFS Redwood Sciences Laboratory and USFWS performed baseline surveys from April through October 2003 for herpetofauna at sites above and immediately below the project area (Welsh, Ashton, and Bettaso 2003). In addition, as part of the Redwood Sciences Laboratory's ongoing bird monitoring and modeling effort for the TRRP, bird surveys were conducted within the project area (Herrera 2006). For species that were detected during the surveys, survey results are included in Appendix L, Special-Status Species Descriptions.

Survey and Manage Species

As discussed above, on January 11, 2006 a U.S. District Court Judge vacated the administration's decision to eliminate the Survey and Manage standard of the Northwest Forest Plan. This decision reinstates the Survey and Manage standard. A list of wildlife species with the potential to occur in the proposed area was compiled by performing an Interagency Species Management System (ISMS) Database search and reviewing the Survey Protocols for the species listed on Table 1-1 of the amended ROD of the Northwest Forest Plan (U.S. Department of Agriculture and U.S. Department of Interior 2001) and USFS and BLM visions for the 2001 Survey and Manage Annual Species Review (USDA Forest Service and Bureau of Land Management 2002). The project site includes public lands managed by BLM.

Surveys for special-status mollusks were conducted on the site during the spring of 2006. No sensitive mollusks were located during either visit.

Critical Deer Winter Range

Deer herds in most of California exhibited serious long-term declines during the late 1960s and early 1970s. The CDFG developed a state-wide plan in 1976 to address the problem, and in 1977 a Deer Management Policy was subsequently adopted by the Fish and Game Commission. The CDFG has responsibility for writing and approving deer herd management plans, including designating Critical Winter Range. Critical Winter Range for the Weaverville deer herd occurs adjacent to the eastern boundary of the project area. Critical winter range is that portion of a winter range that deer are dependent on during severe winter weather. Construction of the Trinity and Lewiston dams inundated 17,000 acres of winter range for this herd (Trinity County 1987). As a result, the remaining winter range has been more heavily used, resulting in a reduction in its quality.

Jurisdictional Waters (including Wetlands)

Information on the historic location and function of wetlands near the rehabilitation site is limited. As described Section 3.3, the historic dredging activities that occurred in the area substantially modified the character and function of the wetlands. An assessment of the geomorphic features at the site suggests that prior to the dredging activities, the floodplain of the Trinity River was much larger than what has developed in association with the construction and operation of the TRD. Based on this assumption, wetland acreage likely declined following dam construction, in part because reduced flows now inundate less of the floodplain. Fringe strands of freshwater emergent vegetation, scrub-shrub, and forested wetlands now occur intermittently where a wider belt of wetland likely existed under pre-dam conditions. The reduction in alternate point bars has also reduced post-dam wetland acreage by curtailing formation of side channels and other meander-related features.

NSR wetland scientists conducted a delineation of jurisdictional waters of the United States within the project boundary. (Jurisdictional waters are waters under the jurisdiction of the Corps). Field observations were conducted on April 13 and 14, 2005. The delineation was conducted according to the methodology described in the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987). A three-parameter approach (i.e., vegetation, soils, and hydrology) was used to identify and delineate the boundaries of jurisdictional wetlands.

Jurisdictional wetland features were mapped on aerial photographs for the site (1 inch = 200 feet scale). Table 3.7-4 provides a summary of the types and acreages of Waters of the United States occurring within the site. In addition to riparian wetland, seasonal wet meadow, and intermittent pool, this table includes “other waters of the United States” (e.g., riverine, pond, and intermittent creek features), which are also under the jurisdiction of the Corps. A field verification was conducted by the Corps, and a verification letter was issued to Reclamation on April 7, 2006. The verification process is documented in Appendix C.

Six types of jurisdictional features were mapped in the project area: riverine (perennial stream), intermittent creek, ephemeral creek, riparian wetland, seasonal wet meadow, and intermittent pool (Figure 3.7-3). These features, which are described below, occupy a total of 101.19 acres of the project area.

TABLE 3.7-4
SUMMARY OF JURISDICTIONAL WATERS

Wetland Type	Total Acreage
Wetlands	
Riparian wetland	0.35
Seasonal wet meadow	0.10
Intermittent pool	0.01
Total Wetlands	0.46
Other Waters	
Riverine	100.62
Intermittent creek	0.10
Ephemeral creek	0.01
Total Other Waters	100.73
Total Jurisdictional Waters	101.19

Riverine. The Trinity River, Indian Creek, and Weaver Creek are the primary influences on wetland features within the site. Riverine (perennial stream) habitat exhibits a distinct bed and bank feature (i.e., scouring), as well as continuous inundation, watermarks, drift lines, and sediment deposits.

Intermittent Creek. Intermittent creek features include natural drainages that convey waters intermittently during the late fall, winter, and spring months, but are usually dry during the summer and early fall months. Two intermittent creeks were identified flowing north to south in the Indian Creek site. Scouring and deposition, as well as a bed and bank, are evident within this feature. No plant species occur within the OHWM of the intermittent creek because of frequent flooding and scouring within the channel. Positive field indicators of wetland hydrology and hydric soils were observed.

Ephemeral Creek. Ephemeral creek features include natural drainages that convey water during and briefly after storm events. Groundwater discharge does not constitute a portion of the flow. Ephemeral creeks are considered non-wetland waters of the United States or “other waters.” One ephemeral creek feature is found within the Indian Creek site.

Intermittent Pool. This feature consists of an intermittent pool that exhibits seasonal inundation. It is likely an artifact of historic mining activities. Vegetation around this feature was limited although positive field indicators of wetland hydrology and hydric soils were observed.

Riparian Wetland. Features determined to be riparian wetlands consist of areas associated with the Trinity River corridor. The dominant plant species composition is similar in the upland and wetland portions of the montane riparian habitat at the site. The differences between montane riparian habitat (a plant community) and riparian wetland (a jurisdictional wetland type) include positive field indicators of wetland hydrology and hydric soils in riparian wetlands.

Riparian wetlands are characterized by a complex of open to dense emergent herbaceous and woody riparian vegetative growth. Plant species observed include torrent sedge (*Carex nudata*), tall flatsedge (*Cyperus eragrostis*), least spikerush (*Eleocharis acicularis*), smooth scouring rush (*Equisetum laevigatum*), and reed canarygrass (*Phalaris arundinaceae*).

3.7.2 REGULATORY SETTING

This section describes specific environmental review and consultation requirements for plants, wildlife, and wetlands, and identifies permits and approvals that must be obtained from local, state, and federal agencies before construction of the Proposed Action.

Federal

Executive Order 13112 (Invasive Species)

Executive Order 13112 directs federal agencies to use relevant programs and authorities to:

- a. prevent the introduction of invasive species;
- b. detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;
- c. monitor invasive species populations accurately and reliably;
- d. provide for restoration of native species and habitat conditions in ecosystems that have been invaded;
- e. conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species;
- f. promote public education on invasive species and the means to address them; and
- g. not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

Measures to avoid and minimize the introduction and spread of invasive species are provided below under Impacts and Mitigation Measures.

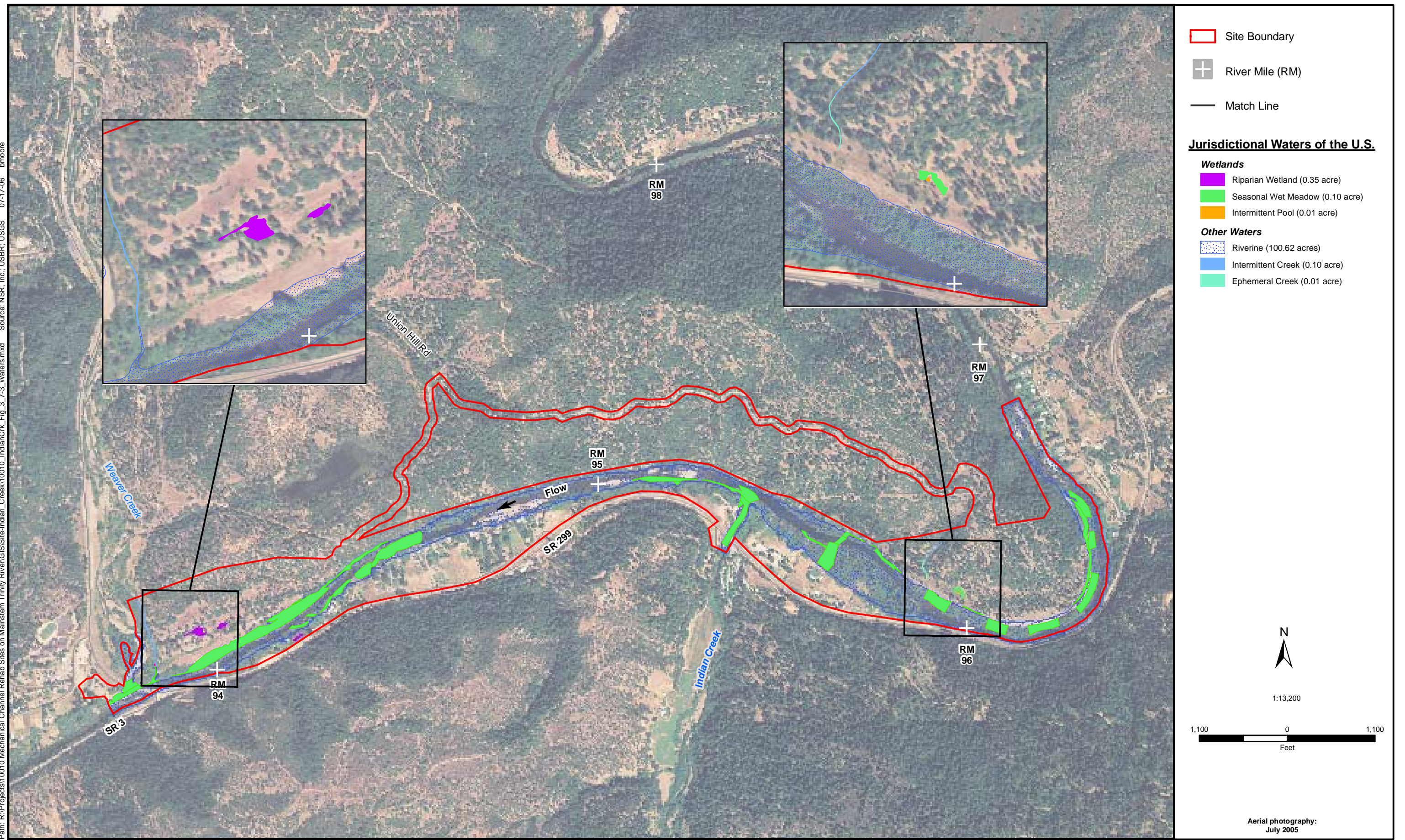


Figure 3.7-3
Jurisdictional Waters of the United States, including Wetlands

U. S. Army Corps of Engineers

Section 404, Clean Water Act

The objective of the Clean Water Act (CWA 1977, as amended) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Discharge of fill material into jurisdictional waters of the United States, including wetlands, is regulated by the Corps under Section 404 of the CWA (33 USC 1251-1376). Corps regulations implementing Section 404 define waters of the United States to include intrastate waters, including lakes, rivers, streams, wetlands, and natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3; 40 CFR 230.3). To comply with the Section 404 policy that there be no net loss of wetlands, the Proposed Action should not affect the total acreage of wetlands within the project boundary. The placement of structures in "navigable waters of the United States" is also regulated by the Corps under Section 10 of the federal Rivers and Harbors Act (33 USC 401 et seq.). Projects are permitted under either individual or general (i.e., nationwide) permits. The specific applicability of the permit types is determined by the Corps on a case-by-case basis. Based on a preliminary conversation with the Corps (San Francisco District – Eureka Field Office), the project is expected to be permitted under Nationwide Permit Number 27 (Wetland and Riparian Restoration and Creation Activities).

U.S. Fish and Wildlife Service

Federal Endangered Species Act

The ESA defines "take" (Section 9) and generally prohibits the "taking" of a species listed as endangered or threatened (16 USC. 1532, 50 CFR 17.3). Under the ESA, the "take" of a federally listed species is deemed to occur when an intentional or negligent act or omission causes the agent of the action "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The term "harm" includes acts that actually kill or injure wildlife. Such acts may include significant habitat modification or degradation when it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Section 7 of the ESA requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat for these species. One federally listed species, the bald eagle, may occur on the site only; however the species is not known to nest within 0.5 mile of the project site and uses the site only for foraging. Thus, formal Section 7 consultation with the USFWS regarding bald eagles is not required for this project.

Informal consultation with the USFWS concerning effects to the northern spotted owl was conducted by Reclamation. Based on this informal consultation, known distribution of spotted owl nests in the area (provided by the USFS), and Trinity River bird distribution data provided by the Redwood Sciences Laboratory, Reclamation determined that a biological assessment was not required since the proposed project would have no effect on the northern spotted owl or its critical habitat.

Migratory Bird Treaty Act (MBTA)

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Most of the birds found in the study area are protected under the MBTA. Thus, project construction has the potential to directly take nests, eggs, young, or individuals of protected species. Further, construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to the abandonment of nests, which would be a violation of the MBTA. Measures that may be instituted to help ensure compliance with the MBTA include the following:

- Grading and other construction activities should be scheduled to avoid the nesting season to the extent possible. The nesting season for most birds in Trinity County extends from March through July.

If the nesting season cannot be avoided, the following measures should be instituted:

- A qualified biologist should conduct pre-construction surveys no more than 1 week prior to the initiation of construction in any given area to ensure that no nests of species protected by the MBTA would be disturbed during project implementation.
- If an active nest more than half completed is found, a construction-free buffer zone should be established around the nest. The size of the buffer zone should be determined by a qualified biologist in consultation with CDFG.

If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting substrate (e.g., bushes, trees, grass, buildings, and burrows) that will be removed by the project should be removed before the onset of the nesting season (March 15) to help preclude nesting. Pre-removal surveys are required for some species. Removal of vegetation or structures should be completed outside of the nesting season (i.e., between August 1 and February 28).

State

California Department of Fish and Game

California Endangered Species Act

Under the CESA, the CDFG is responsible for maintaining a list of endangered and threatened species (California Fish and Game Code 2070). The CDFG also maintains a list of “candidate species,” which are species that the CDFG formally notices as being under review for addition to the list of endangered or threatened species. The CDFG also maintains lists of “species of special concern,” which serve as species “watch lists.”

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project area and determine whether the proposed project could have a significant impact on such species. In

addition, the CDFG encourages informal consultation on any proposed project that may affect a candidate species.

Project-related impacts to species listed as threatened or endangered under CESA would be considered significant. State-listed species are fully protected under the mandates of the CESA. “Take” of protected species incidental to otherwise lawful management activities may be authorized under California Fish and Game Code Section 2081. Authorization from the CDFG would be in the form of an Incidental Take Permit. Three state-listed species may occur on the site: American peregrine falcon, bald eagle, and little willow flycatcher. An Incidental Take Permit may be required for the little willow flycatcher, which may breed on the site. Potential impacts to these species are addressed below under Impact and Mitigation Measures.

Native Plant Protection Act

The Native Plant Protection Act (California Fish and Game Code Sections 1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered, as defined by CDFG. Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the project.

State Wetland Policy

The State’s Wetland Policy is to achieve “no net loss” in the quality and quantity of wetland/riparian habitats from any project. As a result of ongoing discussions between the TRRP and CDFG (a trustee and responsible agency for this project under CEQA), there is agreement that projects that result in impacts to riparian vegetation² require mitigation using a one-to-one areal replacement ratio. For every acre of riparian vegetation removed by this project, one acre of similar riparian vegetation will be replaced such that there will always be no net loss in quantity and quality (= structure + function + wildlife value) of riparian habitat. Replacement of vegetation may occur via replanting or natural revegetation.

Overall this agreement will ensure that there is no net loss of riparian habitat along the TRRP activity reach (40 miles downstream of the Lewiston dam to the North Fork Trinity), so that both fish and wildlife habitat needs and CDFG’s responsibility as a trustee agency are met.

Birds of Prey

Under Section 3503.5 of the California Fish and Game Code, it is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird, except as otherwise provided by this code or any regulation adopted pursuant thereto.

“Fully Protected” Species

California statutes also accord “fully protected” status to a number of specifically identified birds, mammals, reptiles, amphibians, and fish. These species cannot be “taken,” even with an incidental take

² In this document, “riparian” includes both montane riparian wetlands as defined by the Corps and upland montane riparian vegetation as described in California Wildlife Habitat Relationships (California Department of Fish and Game 2005).

permit (California Fish and Game Code, Sections 3505, 3511, 4700, 5050, and 5515). “Fully protected” species potentially occurring in the project area include the American peregrine falcon, golden eagle, and ring-tailed cat.

California Regional Water Quality Control Board

Section 401 Water Quality Certification

The Regional Water Board is responsible for enforcing and protecting water resources associated with the proposed project. The Regional Water Board also regulates the discharge of wastes to surface waters through the National Pollutant Discharge Elimination System (NPDES) permit process. Waste Discharge Requirements are established in NPDES permits to protect beneficial uses.

The Regional Water Board requires that a project proponent apply for and obtain a CWA Section 401 Water Quality Certification for any project that requires a CWA Section 404 permit from the Corps. Since the Proposed Action, Alternative 1, and Alternative 2 would have the potential to affect water quality in the Trinity River, Reclamation will prepare and submit to the Regional Water Board an application for Section 401 Water Quality Certification and/or Waste Discharge Requirements (Dredge/Fill). The application will be submitted to the Regional Water Board when the pre-construction notification is sent to the Corps. The Regional Water Board is likely to impose water quality limitations and project conditions through issuance of waste discharge requirements or Section 401 Certification.

In addition, a Notice of Intent (NOI) application to comply with the General Permit for Storm Water Discharges Associated with Construction Activities will be prepared and submitted by the contractor to the State Water Resources Control Board following award of the project construction contract and completion of the NEPA/CEQA process.

Local

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the county, based on current conditions. The General Plan contains all the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, recreation, economic development, public facilities and services, and air quality. The following goals and policies related to vegetation, wildlife, and wetland issues associated with the Proposed Action were taken from the applicable elements of the General Plan (Trinity County 2001). The General Plan includes the Douglas City Community Plan (Trinity County 1987).

County-Wide Goals and Objectives—Environmental

Goal: To strive to conserve those resources of the county that are important to its character and economic well-being:

- By assuring that developments occurring on these lands are compatible with the resources.
- By strongly supporting the county as “lead agency” or as an integral participant in any state or federal project within the county so that all agencies are made aware of local desires and all plans are coordinated.

- By utilizing a sound resource-related planning process in decision-making.
- By protecting not only rare and endangered species, but also required habitat for more plentiful species.

Douglas City Community Plan Goals and Objectives

This plan includes the area centered on the Trinity River from Grass Valley Creek to slightly downstream of Steiner Flat.

Natural Resources

Goal: To preserve and maintain open space for a variety of wildlife uses.

- Protect floodplain areas from intensive development that could lead to adverse impacts to wildlife.
- Achieve a balance between development and maintenance of open space for critical deer winter range.
- Preserve and protect special habitats areas, such as mineral springs, and snags used by bald eagles and other raptors.

Goal: Maintain, and enhance, the high quality of the area's natural resources.

- Encourage rehabilitation efforts of old brushfields aimed at increasing deer winter forage opportunities throughout the Plan Area.
- Insure that increases in recreational uses of the Trinity River do not result in its degradation.

Goal: To protect and improve fish habitat within the Plan area.

- Encourage the development of restoration projects within the Plan area.

Goal: Encourage the continued use of suitable lands for resource production purposes.

- Encourage the sound use of mineral resources, especially sand and gravel operations that also reduce the sedimentation in the Trinity River.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the proposed project to the relevant local planning policies (i.e., Trinity County General Plan, Douglas City Community Plan) to determine if there are any inconsistencies.

The goals and objectives described in Chapter 1 are generally compatible with the applicable General Plan goals and policies summarized above, and the project activities will not be inconsistent with these goals and objectives. The overall goal of the Proposed Action is to rehabilitate the site so that it functions in a manner that is closer to historic conditions (i.e., pre-Lewiston Dam). Although there will be some mechanical vegetation removal along the Trinity River floodplain, which is a Scenic Conservation

Overlay Zone, the proposed project will include both riparian and upland revegetation efforts intended to provide a more diverse plant assemblage than what is currently present, thereby enhancing the long-term aesthetic values of the river corridor.

3.7.3 ENVIRONMENTAL CONSEQUENCES/IMPACTS AND MITIGATION MEASURES

Significance Criteria

Significance criteria used to analyze the potential impacts of the project on vegetation, wildlife, and wetland resources include factual and scientific information and regulatory standards of county, state, and federal agencies, including the CEQA Guidelines. These criteria have been developed to establish thresholds to determine the significance of impacts pursuant to CEQA (Section 15064.7) and should not be confused with a “take” or adverse effect under the ESA. Additionally, significance criteria do not apply for purposes of NEPA.

Impacts on vegetation would be significant if implementation of the project would result in any of the following:

- potential to substantially reduce the number or restrict the range of an endangered or threatened plant species or a plant species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- potential for substantial reductions in the habitat of any native plant species including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- potential for causing a native plant population to drop below self-sustaining levels;
- potential to eliminate a native plant community;
- substantial adverse effect, either directly or through habitat modifications, on any plant identified as a sensitive or special-status species in local or regional plans, policies, or regulations;
- substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- a conflict with any local policies or ordinances regarding protection or control of vegetation resources;
- a conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of plant resources; or
- potential for spread of non-native and invasive plant species.

Impacts on wildlife would be significant if implementation of the project would result in any of the following:

- mortality of state or federally listed wildlife species, or species that are candidates for listing or proposed for listing;

- potential for reductions in the number, or restrictions of the range, of an endangered or threatened wildlife species or a wildlife species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- potential for substantial reductions in the habitat of any wildlife species, including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- potential for causing a wildlife population to drop below self-sustaining levels;
- substantially block or disrupt major terrestrial wildlife migration, or travel corridors;
- substantial adverse effect, either directly or through habitat modifications, on any wildlife species identified as a sensitive or special-status species in local or regional plans, policies, or regulations;
- substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- a conflict with any state or local policies or ordinances protecting wildlife resources; or
- a conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wildlife species.

Impacts on wetlands would be significant if they would result in any of the following:

- substantial adverse effect on any riparian habitat;
- substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, etc.) through direct removal, filling, hydrological interruption, or other means;
- a conflict with any state or local policies or ordinances protecting wetland and/or riparian resources; or
- a conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wetland resources.

Impacts and Mitigation Measures

Table 3.7-5 summarizes the potential vegetation, wildlife, and wetlands impacts that would result from the No-Action Alternative, the Proposed Action, Alternative 1, and Alternative 2.

TABLE 3.7-5

SUMMARY OF VEGETATION, WILDLIFE, AND WETLAND IMPACTS FOR THE NO-ACTION ALTERNATIVE, THE PROPOSED ACTION, ALTERNATIVE 1, AND ALTERNATIVE 2

No-Action Alternative	Proposed Action	Alternative 1	Alternative 2	Proposed Action with Mitigation	Alternative 1 with Mitigation	Alternative 2 with Mitigation
Impact 3.7-1. Construction activities associated with the project could result in the loss of jurisdictional waters (e.g., wetlands) and riparian habitat.						
NI	S	S	S	LS	LS	LS
Impact 3.7-2. Implementation of the project would result in the loss of upland plant communities.						
NI	LS	LS	LS	N/A ¹	N/A ¹	N/A ¹
Impact 3.7-3. Construction of the project could result in the loss of individuals of a special-status plant species.						
NI	NI	NI	NI	N/A ¹	N/A ¹	N/A ¹
Impact 3.7-4. Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.						
NI	S	S	S	LS	LS	LS
Impact 3.7-5. Construction activities associated with the project could result in impacts to foothill yellow-legged frogs.						
NI	S	S	S	LS	LS	LS
Impact 3.7-6. Construction activities associated with the project could result in impacts to northwestern pond turtles.						
NI	S	S	S	LS	LS	LS
Impact 3.7-7. Construction activities associated with the project could result in impacts to nesting Vaux's swifts, ruffed grouse, yellow warblers, and yellow-breasted chats.						
NI	S	S	S	LS	LS	LS
Impact 3.7-8. Construction activities associated with the project could disrupt active special-status raptor nests.						
NI	S	S	S	LS	LS	LS
Impact 3.7-9. Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.						
NI	S	S	S	LS	LS	LS
Impact 3.7-10. Construction activities associated with the project could result in the temporary loss of non-breeding habitat for several special-status birds.						
NI	LS	LS	LS	N/A ¹	N/A ¹	N/A ¹
Impact 3.7-11. Construction activities associated with the project could result in impacts to BLM sensitive species.						
NI	S	S	S	LS	LS	LS
Impact 3.7-12. Construction activities associated with the project could restrict terrestrial wildlife movement through the project area.						
NI	LS	LS	LS	N/A ¹	N/A ¹	N/A ¹
Impact 3.7-13. Implementation of the project could result in the spread of non-native and invasive plant species.						
NI	S	S	S	LS	LS	LS

Notes:

LS = Less than Significant

S = Significant

SU = Significant Unavoidable

NI = No Impact

B = Beneficial

N/A = Not Applicable

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.7-1: Construction activities associated with the project could result in the loss of jurisdictional wetlands and riparian habitat. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, no loss of jurisdictional wetlands would occur because the project would not be constructed.

Proposed Action

Construction activities associated with the Proposed Action would result in temporary impacts to jurisdictional waters (e.g., wetland features) within the site. Table 3.7-6 lists impacts to these wetland features for the Proposed Action. Construction of the Proposed Action would result in a direct temporary impact to 20.32 acres of jurisdictional waters (Figure 3.7-4a). Temporary impacts to jurisdictional waters would be considered significant.

Construction activities associated with the Proposed Action would also result in temporary impacts to up to 20.43 acres of riparian habitat as defined by the State [includes both riparian wetlands as defined by the Corps and upland montane riparian vegetation described in California Wildlife Habitat Relationships (CDFG 2005)]. Impacts to riparian habitat would be considered significant.

TABLE 3.7-6
EXPECTED MAXIMUM AREAS OF DISTURBANCE TO JURISDICTIONAL WATERS

Jurisdictional Water Type	Approximate Area of Disturbance (Acres)		
	Proposed Action	Alternative 1	Alternative 2
Riverine	20.31	20.03	14.34
Ephemeral creek	0.001	0.026	0.00
Intermittent creek	0.001	0.098	0.001
Riparian wetland	0.004	0.004	0.004
Seasonal wet meadow	0.00	0.00	0.00
Intermittent pool	0.00	0.00	0.00
Total Jurisdictional Waters	20.32	20.16	14.35

Alternative 1

Construction activities associated with Alternative 1 would result in a direct temporary impact to 20.16 acres of jurisdictional waters (Figure 3.7-4b). Table 3.7-6 lists impacts to these wetlands features under Alternative 1. Temporary impacts to jurisdictional waters would be considered a significant impact.

Construction activities associated with Alternative 1 would also result in temporary impacts to up to 20.42 acres of riparian habitat as defined by the State. Impacts to riparian habitat would be considered significant.

Alternative 2

Construction activities associated with Alternative 2 would result in a direct temporary impact to 14.35 acres of jurisdictional waters (Figure 3.7-4c). Table 3.7-6 lists impacts to these wetland features under Alternative 2. Temporary impacts to jurisdictional wetlands would be considered a significant impact.

Construction activities associated with Alternative 2 would also result in temporary impacts to up to 15.36 acres of riparian habitat as defined by the State. Impacts to riparian habitat would be considered significant.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

In order to avoid and minimize impacts to jurisdictional wetlands, the following mitigation measures will be implemented:

- 1a.** Prior to the start of construction activities, Reclamation shall retain a qualified biologist to identify potential construction access routes necessary for the project to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, Reclamation shall clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor specific instructions to avoid any construction activity within these features. Reclamation shall inspect and maintain marked areas on a regular basis throughout the construction phase.
- 1b.** Reclamation shall develop a Riparian Revegetation and Monitoring Plan, subject to approval by the Corps, Regional Water Board, and CDFG, prior to implementing the proposed project. The plan shall include measures that ensure that all riparian vegetation (a key parameter of jurisdictional wetlands) removed by TRRP projects within the 40-mile corridor of the Trinity River downstream of Lewiston Dam is replaced by natural recruitment, replanting, or any combination thereof at an areal ratio of 1:1 within a 5-year time frame. Because the present Trinity River channel is encroached (up to 300 percent) with riparian vegetation that is homogenous in nature, this plan need not require strict replacement based on original stem counts and species. The plan shall acknowledge that the ultimate goals of the TRRP include functional riparian habitat and no net-loss of jurisdictional wetlands throughout the 40-mile reach of the Trinity River below the TRD. Because riparian habitat and jurisdictional wetlands will respond to river restoration with some degree of spatial and temporal variability, areal habitat coverages within a river reach will remain relatively consistent while habitat changes at specific locations may be measurable.

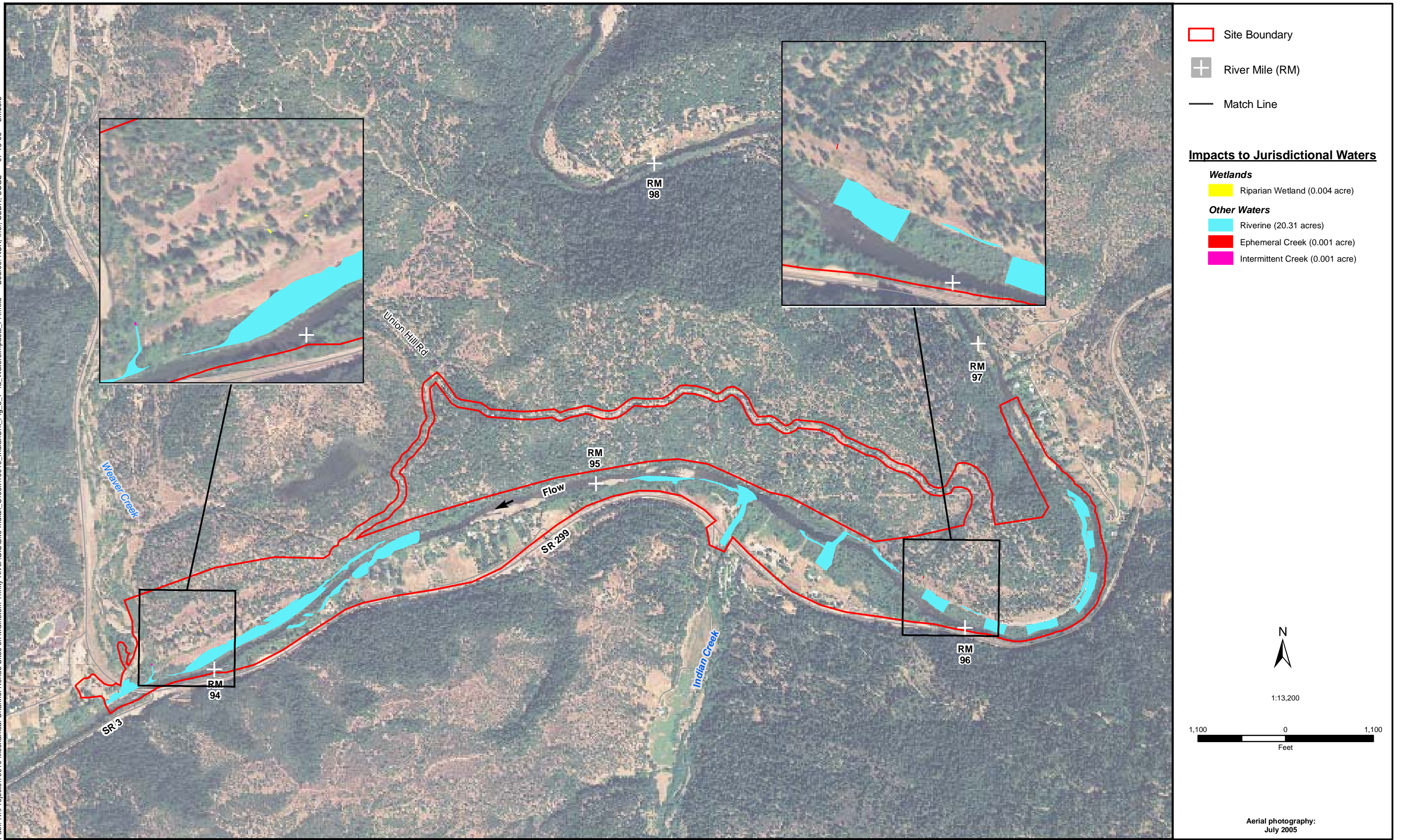


Figure 3.7-4a
Proposed Action Impacts to Jurisdictional Waters of the United States

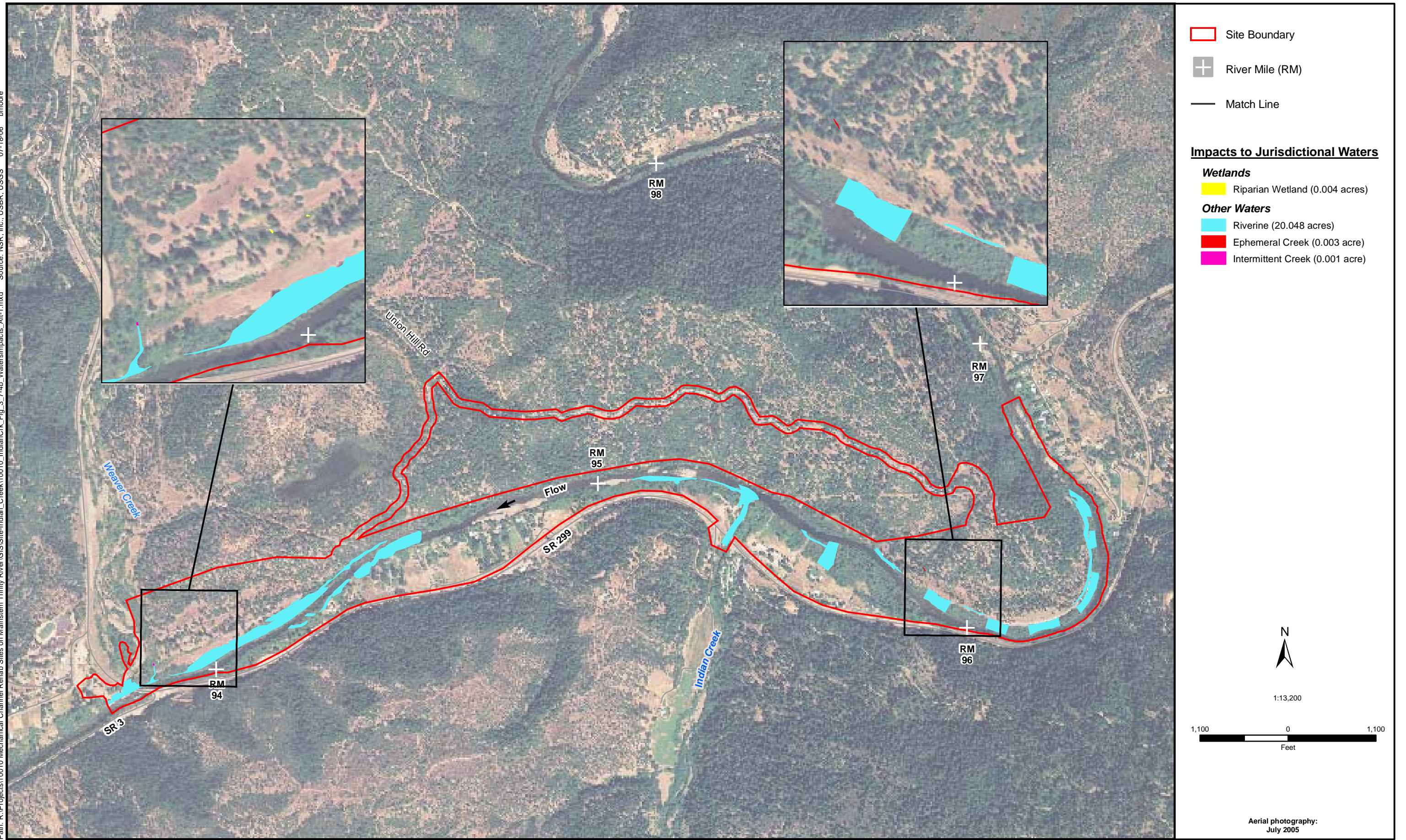


Figure 3.7-4b
Alternative 1 Impacts to Jurisdictional Waters of the United States

Path: R:\Projects\10010 Mechanical Channel Rehab Sites on Mainstem Trinity River\GIS\Site-Indian_Creek\10010_IndianCk_Fig. 3.7-4c_WatersImpacts_Alt-2.mxd Source: NSR, Inc.; USBR; USGS 07-19-06 bmoore

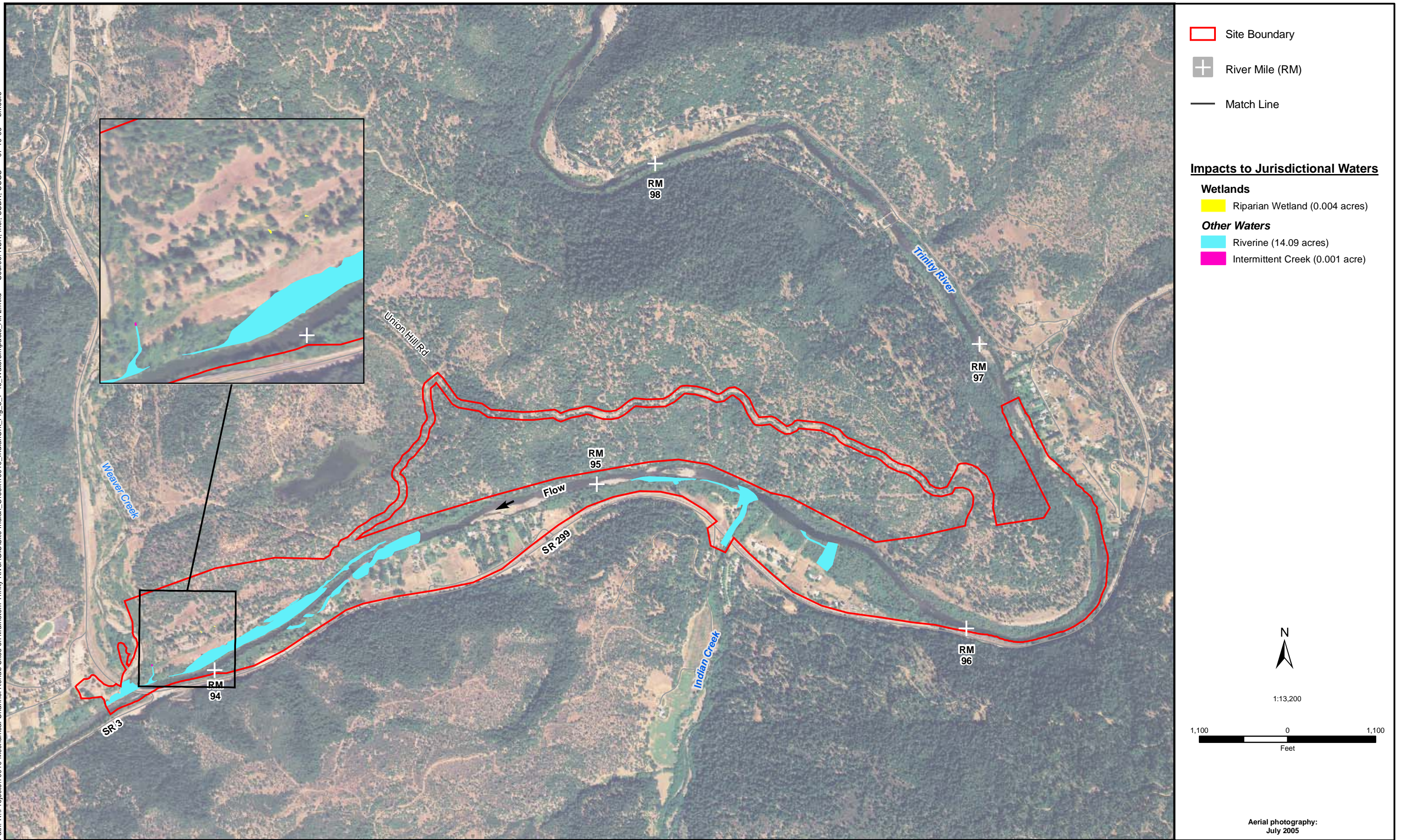


Figure 3.7-4c
Alternative 2 Impacts to Jurisdictional Waters of the United States

1c. Floodplain values and functions will be enhanced by the Indian Creek Rehabilitation Site project as well as by ROD flows. Consequently, substantial new areas beyond those identified in pre-project plant community delineations are expected to convert to riparian habitats (in some cases, jurisdictional wetlands), both seasonal and perennial, within a 3–5 year post-project window. Reclamation will take advantage of opportunities during or after project construction to enhance wetland functions within project boundaries or to create conditions required for functional jurisdictional wetlands (i.e., hydrology, vegetation, and hydric soils) to persist over time. For example, excavation of areas upslope (beyond the 6,000 cfs OHWM line) to a depth coincident with low-flow (450 cfs) conditions may provide opportunities to establish the hydrologic conditions necessary for establishing functional jurisdictional wetlands.

Reclamation shall initiate a 5-year mitigation monitoring program after the first growing season following project implementation. After a period of three years, the need will be evaluated (if any) for additional wetland enhancement. At that time, Reclamation, in consultation with the Corps, Regional Water Board and CDFG, will determine the need to further enhance or create additional areas of jurisdictional wetlands within the project boundary defined in the EIR so that there will be no-net loss of wetlands at the end of the 5-year monitoring period. Determining the need to further enhance or create additional wetland areas after three years of monitoring will provide a two year period for Reclamation to take additional pro-active measures towards meeting the goal of no net-loss of jurisdictional wetland habitat within the boundaries of the Indian Creek site.

Reclamation shall conduct a post-project wetland delineation five years after project construction for comparison to the pre-construction wetland delineation. In the event that a post-project wetland delineation identifies a net loss of jurisdictional wetlands within the Indian Creek site, the TRRP, in consultation with the Corps, the Regional Water Board, and CDFG, will implement additional mitigation measures to further enhance or create additional jurisdictional wetlands within the boundary of the Indian Creek site. In the event the conditions within the boundary of this site precludes the ability to adequately mitigate onsite, Reclamation may consider alternate locations for jurisdictional wetland mitigation within the local Trinity River corridor, subject to approval by the Corps, the Regional Water Board and CDFG.

Significance after Mitigation: Less than Significant

Impact 3.7-2: Implementation of the project would result in the loss of upland plant communities. *No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to upland plant communities would occur because the project would not be constructed.

Proposed Action

Table 3.7-7 indicates the total acreage of permanent and temporary impacts to upland plant communities as a result of the Proposed Action. The permanent loss of 44.93 acres and a temporary impact to 10.64 acres of upland habitat is not considered significant due to the relative abundance of these upland plant community types within the sites and local area. Furthermore, a proportion of the permanently lost montane riparian habitat communities would be replaced with an early and diverse stage of riparian community that is relatively rare along the river. A combination of replanting and natural revegetation will occur to ensure that riparian habitat values on the Trinity River meet wildlife needs. Current needs for revegetation will be determined via monitoring, coordination with local resource agencies, and adaptively managing to meet changing needs and desired future conditions. Temporary access routes and staging areas will be rehabilitated and stabilized to the satisfaction of the land manager/landowner upon completion of work. Additionally, any affected upland areas will be seeded with native plant species.

TABLE 3.7-7
EXPECTED MAXIMUM AREAS OF DISTURBANCE TO UPLAND PLANT COMMUNITIES

Upland Plant Community Type	Approximate Area of Disturbance (Acres)					
	Proposed Action		Alternative 1		Alternative 2	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Annual grassland	4.35	3.67	4.35	3.67	0.97	3.56
Barren	0.57	12.21	0.59	12.21	0.57	12.21
Foothill pine	0.00	0.05	0.00	0.07	0.00	0.05
Klamath mixed conifer	0.06	2.25	0.06	2.40	0.06	2.25
Mixed chaparral	0.00	0.28	0.00	0.37	0.00	0.28
Montane hardwood	0.00	0.03	0.00	0.03	0.00	0.03
Montane hardwood-conifer	1.00	3.41	5.82	8.49	0.00	1.19
Montane riparian	2.31	19.66	2.31	19.66	1.72	14.78
Ponderosa pine	1.58	0.48	1.58	0.48	0.07	0.01
Urban	0.77	2.89	0.72	2.89	0.77	2.89
Total	10.64	44.93	15.43	50.27	4.16	37.25

Alternative 1

Alternative 1 would result in impacts to upland habitats similar to those of the Proposed Action. Table 3.7-7 indicates the total acreage of permanent and temporary impacts to upland plant communities as a result of Alternative 1. The permanent loss of 50.27 acres and a temporary impact to 15.43 acres of upland habitat is not considered significant due to the relative abundance of these upland plant community types within the site. Furthermore, a proportion of the permanently lost montane riparian habitat communities would be replaced with an early and diverse stage of riparian community that is relatively rare along the river. A combination of replanting and natural revegetation will occur to ensure that riparian habitat values on the Trinity River meet wildlife needs. Current needs for revegetation will be determined via monitoring, coordination with local resource agencies, and adaptively managing to meet changing needs and desired future conditions. Temporary access routes and staging areas will be

rehabilitated and stabilized to the satisfaction of the land manager/landowner upon completion of work. Additionally, any affected upland areas will be seeded with native plant species.

Alternative 2

Alternative 2 would result in impacts to upland habitats similar to those of the Proposed Action, although fewer acres would be affected. Table 3.7-7 indicates the total acreage of permanent and temporary impacts to upland plant communities as a result of Alternative 2. The permanent loss of 37.25 acres and a temporary impact to 4.16 acres of upland habitat is not considered significant due to the relative abundance of these upland plant community types within the site. Furthermore, a proportion of the permanently lost montane riparian habitat communities would be replaced with an early and diverse stage of riparian community that is relatively rare along the river. A combination of replanting and natural revegetation will occur to ensure that riparian habitat values on the Trinity River meet wildlife needs. Current needs for revegetation will be determined via monitoring, coordination with local resource agencies, and adaptively managing to meet changing needs and desired future conditions. Temporary access routes and staging areas will be rehabilitated and stabilized to the satisfaction of the land manager/landowner upon completion of work. Additionally, any affected upland areas will be seeded with native plant species.

Mitigation Measures

No-Action Alternative, Proposed Action, Alternative 1, and Alternative 2

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.7-3: Construction of the project could result in the loss of individuals of a special-status plant species. *No Impact for the No-Action Alternative, Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to a special-status plant species would occur because the project would not be constructed.

Proposed Action, Alternative 1, and Alternative 2

Floristic (vegetation) inventories and special-status plant surveys were conducted over the entirety of the site. No special-status plant species were detected within the project boundary. Therefore, no impacts to special-status plant species would occur as a result of the project.

Mitigation Measures

No-Action Alternative, Proposed Action, Alternative 1, and Alternative 2

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.7-4: Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to the little willow flycatcher would occur because the project would not be constructed.

Proposed Action

Suitable montane riparian habitat for the little willow flycatcher is present at the site, and willow flycatchers were detected in the study area during the 2005 breeding season (Herrera 2006). The Proposed Action would result in a small, temporary reduction of foraging habitat for this species. However, implementation of Mitigation Measure 3.7-1 will ensure that there is no net loss of riparian habitat and a long-term increase in riparian habitat diversity. Thus, due to the small and temporary nature of the impacts and the regional abundance of similar habitats, the project is not expected to have a significant impact on habitat for the little willow flycatcher. However, the removal of riparian vegetation and the noise associated with construction activities could disturb individuals nesting on or adjacent to the sites. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting little willow flycatchers or any activities resulting in nest abandonment would be considered a significant impact.

Alternative 1

Construction-related impacts to little willow flycatchers under Alternative 1 would be similar to those under the Proposed Action. These impacts would be significant.

Alternative 2

Temporary construction-related impacts to little willow flycatchers under Alternative 2 would be less than those under the Proposed Action as a result of a reduced impact to montane riparian habitat (i.e., elimination of the R-1 treatment area). Nonetheless, this would be considered a significant impact. In addition, the long-term increase in riparian habitat in the project area will also be reduced from that under the Proposed Action due to the reduced amount of berm removal under Alternative 2.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

The following mitigation measures shall be implemented to avoid or minimize potential impacts to the little willow flycatcher:

- 4a.** Grading and other construction activities should be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 15 through July 31 (P. Herrera, Redwood Sciences Laboratory, pers. comm.). If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, Mitigation measures 4b and 4c should be implemented.
- 4b.** A qualified biologist shall conduct a minimum of one pre-construction survey for the little willow flycatcher within the project site and a 250-foot buffer around the site. The survey shall be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey shall be used to ensure that no nests of this species within or immediately adjacent to the project site would be disturbed during project implementation. If an active nest is found, CDFG shall be contacted prior to the start of construction to determine the appropriate mitigation measures.
- 4c.** If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the project shall be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.

Significance after Mitigation: Less than Significant

Impact 3.7-5: Construction activities associated with the project could result in impacts to the foothill yellow-legged frog. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to the foothill yellow-legged frog would occur.

Proposed Action

The project site provides suitable habitat for the foothill yellow-legged frog, and the species is known to occur in Indian Creek (Don Ashton, Redwood Sciences Laboratory, pers. comm.). Construction activities associated with the Proposed Action may affect foothill yellow-legged frogs directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance of boulders or cobbles that support egg masses, and the loss of riparian vegetation cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. These impacts would be considered significant. However, over the long term, the project will benefit the species through the creation of additional and higher quality habitat, such as feathered edges and backwaters that will provide habitat for tadpoles.

Alternative 1

Construction-related impacts to breeding foothill yellow-legged frogs under Alternative 1 would be less than those under the Proposed Action as a result of the elimination of the temporary Trinity River crossing. Nonetheless, the impact would be considered significant.

Alternative 2

Construction-related impacts to breeding foothill yellow-legged frogs under Alternative 2 would be less than those under the Proposed Action as a result of the elimination of the temporary Trinity River crossing and the R-1 treatment area. Nonetheless, the impact would be considered significant.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

In order to avoid and/or minimize impacts to the foothill yellow-legged frog, the following measures shall be implemented:

- 5a.** If any construction in the Trinity River, Indian Creek, and/or Weaver Creek channel will occur prior to August 1 of any construction season, a pre-construction survey for yellow-legged frog larvae and/or eggs shall be conducted by a qualified biologist. This survey would need to be conducted within the construction boundary no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist shall relocate them to a suitable location outside of the construction boundary.
- 5b.** In the event that a yellow-legged frog is observed within the construction boundary, the contractor shall temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits.
- 5c.** Mitigation measures presented in Section 3.5 for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the yellow-legged frog due to sedimentation and accidental spills.
- 5d.** Mitigation measures associated with the disturbance to riparian habitat were previously discussed (Mitigation Measure 3.7-1) and will be fully implemented.

Significance after Mitigation: Less than Significant

Impact 3.7-6: Construction activities associated with the project could result in impacts to the northwestern pond turtle. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to the northwestern pond turtle would occur because the project would not be constructed.

Proposed Action

The project site provides suitable habitat for the northwestern pond turtle, and this species has been observed in the project area (Herrera 2006). Construction activities associated with the Proposed Action

could affect pond turtles directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance to nests in upland areas, and loss of riparian cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. Thus, construction activities associated with the project may result in significant impacts to the northwestern pond turtle. However, over the long term, the project will benefit the species through the creation of additional and higher quality habitat. For example, removal of riparian berms will improve access to potential upland nesting and overwintering sites, and the creation of side channels will provide slow-water basking and foraging habitat.

Alternative 1

Construction-related impacts to northwestern pond turtles under Alternative 1 would be less than those under the Proposed Action as a result of the elimination of the temporary Trinity River crossing. Nonetheless, the impact would be considered significant.

Alternative 2

Construction-related impacts to northwestern pond turtles under Alternative 2 would be less than those under the Proposed Action as a result of the elimination of the temporary Trinity River crossing and the R-1 treatment area. Nonetheless, the impact would be considered significant.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

In order to avoid and/or minimize impacts to the northwestern pond turtle, the following measures shall be implemented:

- 6a.** A minimum of one survey for pond turtle nests shall be conducted a maximum of one week prior to construction. A qualified biologist shall be retained by Reclamation to conduct the survey. If a pond turtle nest is found, the biologist shall flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, the nest shall be excavated by the biologist and reburied at a suitable location outside of the construction limits.
- 6b.** In the event that a pond turtle is observed within the construction limits, the contractor shall temporarily halt construction activities until the turtle has been moved by a qualified biologist to a safe location within suitable habitat outside of the construction limits.
- 6c.** Mitigation measures presented in Section 3.5 (Water Quality) for addressing erosion and sedimentation and accidental spills shall be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills.
- 6d.** Mitigation measures associated with the disturbance to riparian habitat were discussed previously in this section (Mitigation Measure 3.7-1) and shall be fully implemented.

Significance after Mitigation: Less than Significant

Impact 3.7-7: Construction activities associated with the project could result in impacts to nesting California yellow warblers, yellow-breasted chats, Vaux's swifts, and ruffed grouse. ***No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to nesting yellow warblers, yellow-breasted chats, Vaux's swifts, and ruffed grouse would occur.

Proposed Action

The riparian habitat associated with the Trinity River corridor in the project area provides suitable nesting and foraging habitat for the California yellow warbler and yellow-breasted chat. Both of these species are designated as Species of Special Concern by the CDFG. Both species have been observed in the project area during the breeding season (Herrera 2006) and may nest on site. The conifer habitat in the project area provides habitat for the Vaux's swift and ruffed grouse. Vaux's swifts have been observed in the project area (Herrera 2006).

The Proposed Action would result in a small, temporary reduction of nesting, foraging, and/or roosting habitat for these species. However, implementation of Mitigation Measure 3.7-1 will ensure that there is no net loss of riparian habitat. Furthermore, the Proposed Action would result in a long-term increase in riparian habitat diversity, increasing the quality of the habitat for the California yellow warbler and the yellow-breasted chat. Thus, due to the small and temporary nature of the impacts and the regional abundance of similar habitats, the project is not expected to have a significant impact on habitat for the Vaux's swift, ruffed grouse, California yellow warbler, and yellow-breasted chat. However, the removal of riparian vegetation and the noise associated with construction activities could disturb individuals nesting on or adjacent to the sites. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting individuals or any activities resulting in nest abandonment would be considered a significant impact.

Alternative 1

Construction-related impacts to nesting California yellow warblers, yellow-breasted chats, Vaux's swifts, and ruffed grouse under Alternative 1 would be similar to those under the Proposed Action. These impacts would be considered significant.

Alternative 2

Construction-related impacts to nesting California yellow warblers, yellow-breasted chats, Vaux's swifts, and ruffed grouse under Alternative would be less than those under the Proposed Action. Nonetheless, these impacts would be considered significant.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

In order to avoid and/or minimize impacts to nesting Vaux's swifts, ruffed grouse, California yellow warblers, and yellow-breasted chats, the following measures shall be implemented:

- 7a.** Grading and other construction activities shall be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through August. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, measures 7b and 7c shall be implemented.
- 7b.** A qualified biologist shall conduct a minimum of one pre-construction survey for these species within the project site and a 250-foot buffer around the site. The survey shall be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey shall be used to ensure that no nests of these species within or immediately adjacent to the project sites would be disturbed during project implementation. If an active nest is found, a qualified biologist shall determine the extent of a construction-free buffer zone to be established around the nest.
- 7c.** If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (e.g., shrubs and trees) that will be removed by the project shall be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.

Significance after Mitigation: Less than Significant

Impact 3.7-8: Construction activities associated with the project could disrupt nesting by special-status raptors. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to active raptor nests would occur because the project would not be constructed.

Proposed Action

Suitable nesting habitat for the northern goshawk, osprey, Cooper's hawk, and sharp-shinned hawk, which are designated as California Species of Special Concern, occurs at the site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting raptors, or any activities resulting in raptor nest abandonment, would be considered a significant impact.

Alternative 1

Construction-related impacts to active raptor nests associated with Alternative 1 would be greater than or similar to those under the Proposed Action. This would be considered a significant impact.

Alternative 2

Construction-related impacts to active raptor nests associated with Alternative 1 would be less than those under the Proposed Action since the R-1, U-1, and U-2 treatment areas would not be implemented. Nonetheless, this would be considered a significant impact.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

In order to avoid and/or minimize impacts to nesting special-status raptors, the following measures shall be implemented:

- 8a.** Construction shall be scheduled to avoid the nesting season for raptors to the extent feasible. The nesting season for most raptors in Trinity County extends from February 15 through July 31. Thus, if construction can be scheduled to occur between August 1 and February 14, the nesting season will be avoided and no impacts to nesting raptors would be expected. If it is not possible to schedule construction during this time, the following mitigation measures shall be implemented.
- 8b.** Pre-construction surveys for nesting raptors shall be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the biologist shall inspect all trees immediately adjacent to the impact areas for raptor nests. If an active raptor nest is found close enough (i.e., within 500 feet) to the construction area to be disturbed by these activities, the biologist, in consultation with the CDFG, shall determine the extent of a construction-free buffer zone to be established around the nest.
- 8c.** If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the project shall be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.

Significance after Mitigation: Less than Significant

Impact 3.7-9: Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat. ***No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action, Alternative 1, and Alternative 2***

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to breeding special-status bats or the ring-tailed cat would occur.

Proposed Action

The Trinity River riparian corridor, including the site for the Proposed Action, provides suitable roosting and/or foraging habitat for four bat species: the long-eared myotis, pallid bat, Yuma myotis, and Townsend's western big-eared bat. Species-specific surveys for bats were not conducted at the site; therefore, their presence is assumed. Two of these bat species (long-eared myotis bat and pallid bat) may roost in trees (e.g., spaces under tree bark or in cavities) as well as caves and buildings, while the other two species (Townsend's western big-eared bat and Yuma myotis) prefer to nest in structures such as buildings, caves, and mines. The project area does not provide suitable roosting habitat for the Townsend's western big-eared bat or the Yuma myotis. For the long-eared myotis and pallid bat (species that roost in trees), habitat preference is typically woodland and forest habitat. It is unlikely that these bats would roost in the willows and alders typically found immediately along the Trinity River. However, they may roost in habitats more likely to contain large trees with cavities or loose bark, such as montane hardwood and foothill pine. Impacts to habitat containing potential roost trees will occur at the site. Noise and visual disturbances associated with construction activities may disrupt bats roosting within and directly adjacent to the project area. Further, removing large trees with cavities could result in the direct loss of colonies and may be considered a significant impact.

Each of these bat species has the potential to forage at the project site. Foraging habitat typically consists of forested habitats in close association with water. Construction activities associated with the Proposed Action could temporarily alter the foraging patterns of these species; however, this would be considered a less-than-significant impact based on the abundance of suitable foraging habitat in the vicinity of the Proposed Action. No long-term impediments to foraging habitat associated with the Proposed Action are anticipated.

The Trinity River riparian corridor also provides habitat for the ring-tailed cat. The willows and alders typically found immediately along the river are unlikely to provide suitable denning habitat for this species due to their small size and lack of large cavities/snags. However, other habitats in the project area, such as montane hardwood and montane hardwood conifer, may provide suitable denning sites. Thus, removal of large trees with cavities or snags could result in the loss of ring-tailed cats, which may be considered a significant impact. Construction activities would also result in short-term reduction in foraging habitat for this species. However, the project would ultimately result in an increase in habitat and an increase in habitat quality for this species. Thus, due to the abundance of similar habitat in the area, the temporary loss of foraging habitat would be a less-than-significant impact.

Alternative 1

Construction-related impacts to bats and bat habitat and to the ring-tailed cat associated with Alternative 1 would be similar to or greater than those under the Proposed Action. This would be considered a significant impact.

Alternative 2

Construction-related impacts to bats and bat habitat and to the ring-tailed cat associated with Alternative 2 would be less than those under the Proposed Action since the R-1, U-1, and U-2 treatment areas would not be implemented. Nonetheless, this would be considered a significant impact.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

In order to avoid and/or minimize impacts to roosting special-status bats and the ring-tailed cat, the following measures shall be implemented:

- 9a.** A pre-construction survey for roosting bats and ring-tailed cats shall be conducted prior to any removal of trees ≥ 12 inches in diameter at 4.5 feet above grade. The survey shall be conducted by a qualified biologist. No activities that would result in disturbance to active roosts of special-status bats or dens of ring-tailed cats shall proceed prior to completion of the surveys. If no active roosts or dens are found, no further action would be warranted. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified bat biologist shall determine the extent of a construction-free zone to be implemented around the roost. If a bat maternity roost or hibernacula or a ring-tailed cat den is present, Measures 9b and/or 9c shall be implemented. CDFG shall also be notified of any active bat nurseries within the disturbance zones.
- 9b.** If an active maternity roost or hibernacula is found, the project shall be redesigned to avoid the loss of the tree occupied by the roost, if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that tree shall commence before bat maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). The disturbance-free buffer zones described above shall be observed during the bat maternity roost season (March 1–July 31). If a non-breeding bat hibernacula is found in a tree scheduled to be razed, the individuals shall be safely evicted, under the direction of a qualified bat biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow air flow through the cavity. Demolition shall then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for air flow and the demolition). This action shall allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.
- 9c.** If an active ring-tailed cat nest is found, the project will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that tree shall commence outside of the breeding season (February 1 to August 30). If a non-breeding den is found in a tree scheduled to be razed, the individuals

shall be safely evicted under the direction of a qualified biologist. Trees with dens that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.

Significance after Mitigation: Less than Significant

Impact 3.7-10: Construction activities associated with the project could result in the temporary loss of non-breeding habitat for special-status birds. *No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to non-breeding habitat for sensitive species would occur because the project would not be constructed.

Proposed Action

The Trinity River riparian corridor, including the project area, provides both foraging and perching habitat for bald eagles, golden eagles, American peregrine falcons, merlins, and black swifts, but suitable nesting habitat is absent. The nearest known bald eagle nesting site is located approximately 7 miles to the northeast on the Trinity River. Construction activities associated with the project could temporarily alter the foraging patterns of these species; however, this impact would be considered less than significant based on the abundance of suitable foraging habitat in the vicinity of the proposed project. No long-term impediments to foraging habitat associated with the Proposed Action are anticipated. The loss of potential perch trees would not affect the abundance of these species or their use of the Trinity River for foraging habitat.

Alternative 1

Construction-related impacts to non-breeding habitat for special-status birds under Alternative 1 would be similar to those under the Proposed Action. These impacts would be considered less than significant.

Alternative 2

Construction-related impacts to non-breeding habitat for special-status birds under Alternative 2 would be less than those under the Proposed Action since the R-1, U-1, and U-2 treatment areas would not be implemented. These impacts would be considered less than significant.

Mitigation

No-Action Alternative, Proposed Action, Alternative 1, and Alternative 2

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A

Impact 3.7-11: Construction activities associated with the project could result in impacts to BLM sensitive species. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2, except for the Pacific fisher, and*

Less-than-Significant Impact for the Proposed Action, Alternative 1, and Alternative 2 for the Pacific fisher

No-Action Alternative

Under the No-Action Alternative, no construction-related impacts to BLM sensitive species would occur.

Proposed Action

As previously discussed, plant surveys for BLM sensitive and Survey and Manage species were conducted at the site during the spring and summer of 2002 and fall 2003 (McFarland 2003). Neither of the two BLM sensitive plant species with the potential to occur at the site were identified during the focused plant surveys. Additionally, surveys for mollusks were conducted within the site during the spring 2006 survey period. No mollusks were located during either visit. None of the public lands at the site contain suitable habitat for BLM sensitive mollusks.

Seven of the wildlife species with potential to occur at the site are designated BLM sensitive species: foothill yellow-legged frog, Pacific fisher, small-footed myotis bat, long-eared myotis bat, pallid bat, Townsend's western big-eared bat, and Yuma myotis bat (see Table 3.7-1). With the exception of the Pacific fisher, potential impacts to these species are discussed as separate impacts above. The Pacific fisher may use the Trinity River as a travel corridor; however, suitable denning habitat is not present at the site. Therefore, impacts would be less than significant and mitigation measures are not provided for the Pacific fisher.

Alternative 1

Construction-related impacts to BLM sensitive species under Alternative 1 would be similar to those under the Proposed Action. This would be a less-than-significant impact.

Alternative 2

Construction-related impacts to BLM sensitive species under Alternative 2 would be less than those under the Proposed Action since the R-1, U-1, and U-2 treatment areas would not be implemented. Nonetheless, this would be a less-than-significant impact.

Mitigation Measures

No-Action Alternative, Proposed Action, Alternative 1, and Alternative 2

Since no significant impacts for the Pacific fisher were identified, no mitigation is required. Mitigation measures 5a, 5b, and 5c will reduce the impacts to the foothill yellow-legged frog to a less-than-significant level. Mitigation measures 9a and 9b will reduce the impacts to special-status bat species to a less-than-significant level.

Significance after Mitigation: N/A.

Impact 3.7-12: Construction activities associated with the project could restrict terrestrial wildlife movement through the sites. ***No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action, Alternative 1, and Alternative 2***

No-Action Alternative

Under the No-Action Alternative, construction-related restriction of terrestrial wildlife movement through the sites would not occur because the project would not be constructed.

Proposed Action

The Trinity River corridor provides habitat and travel corridors for such species as Pacific fisher, American marten, black-tailed deer, river otter, beaver, common merganser (*Mergus merganser*), green heron (*Butorides virescens*), black-crowned night heron (*Nycticorax nycticorax*), wood duck (*Aix sponsa*), belted kingfisher, cliff swallow (*Hirundo pyrrhonota*), bank swallow, and raccoon. The riparian vegetation along the Trinity River, in association with adjacent and/or nearby mixed-conifer and montane hardwood-conifer habitat, provides connected habitat within an area that has been fragmented by rural residential development and road building. Black-tailed deer inhabit shrublands, forests, and oak woodlands and use riparian vegetation for cover. However, construction noise and activity will not significantly impede the seasonal migration of the Weaverville deer herd from high elevation summer habitats to lower elevation critical winter ranges in the project vicinity. Construction noise could also temporarily alter foraging patterns of resident wildlife species, and vegetation removal along the river could temporarily disrupt wildlife movement through the area. However, no long-term impediments to wildlife movement within the sites are anticipated as a result of implementing the Proposed Action. Therefore, this would be a less-than-significant impact.

Alternative 1

Construction-related impacts to terrestrial wildlife movement associated with Alternative 1 would be similar to those under the Proposed Action. This would be a less-than-significant impact.

Alternative 2

Construction-related impacts to terrestrial wildlife movement associated with Alternative 2 would be less than those under the Proposed Action since the R-1, U-1, and U-2 treatment areas would not be implemented. Nonetheless, this would be a less-than-significant impact.

Mitigation Measures

No-Action Alternative, Proposed Action, Alternative 1, and Alternative 2

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Impact 3.7-13: Implementation of the project could result in the spread of non-native and invasive plant species. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, the spread of non-native and invasive plant species would not occur as a result of construction activities because the project would not be constructed.

Proposed Action

Implementation of the proposed project could result in the spread of non-native and invasive plant species (e.g., dalmatian toadflax, yellow star-thistle, Himalayan blackberry, and Klamathweed) during ground-disturbing activities. This would be considered a significant impact. However, further spread of weeds is not anticipated with implementation of the mitigation measures described below.

Alternative 1

The spread of non-native and invasive plant species as a result of implementation of Alternative 1 would be similar to the Proposed Action. This would be a significant impact.

Alternative 2

The spread of non-native and invasive plant species as a result of implementation of Alternative 2 would be less than under the Proposed Action. Nonetheless, this would be a significant impact.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A.

Proposed Action, Alternative 1, and Alternative 2

In order to avoid and/or minimize the potential introduction and/or spread of noxious weeds, the following measures shall be implemented:

- 13a.** When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed.
- 13b.** Preclude the use of rice straw in riparian areas.
- 13c.** Limit any import or export of fill to material known to be weed free.
- 13d.** Require the construction contractor to thoroughly wash all equipment prior to entering the County. Equipment shall be inspected to ensure that it is free of plant parts as well as soils, mud, or other debris that may carry weed seeds.
- 13e.** Use a mix of native grasses, forbs, and non-persistent non-native species (mix to be developed in cooperation with members of the TCWMC) for disturbed areas that are subject to infestation by non-native and invasive plant species. Where appropriate, a heavy application of mulch will be used to discourage introduction of these species.
- 13f.** After completion of final grading activities, Reclamation shall coordinate with members of the TCWMC to identify high-priority areas that shall be treated using planting plugs of native grass species to accelerate occupation of disturbed sites and increase the likelihood of reestablishing a self-sustaining population of native plant species.
- 13g.** Within the first 3 to 5 years post-project, if it is determined that the project has caused non-native invasive vegetation to out-compete desired planted or native colonizing riparian vegetation, opportunities to control these non-native species shall be considered. When

implementing weed control techniques, the approach will consider using all available control methods known for a weed species. Control methods will be consistent with those adopted by the TCWMC and the Trinity County Board of Supervisors.

Significance after Mitigation: Less than Significant

3.8 Recreation

This section summarizes information about the recreational resources and uses within the project boundary and the potential impacts to recreation associated with implementation of the No-Action Alternative, the Proposed Action, Alternative 1, and Alternative 2. The project's conformance with the federal and state Wild and Scenic Rivers Acts (WSRAs) are also evaluated. The following evaluation is based on a review of local land use plans and policies specific to recreational uses and field reconnaissance to identify potential recreational opportunities in the project boundary.

3.8.1 AFFECTED ENVIRONMENT/ENVIRONMENTAL SETTING

Regional Setting

Trinity County has a vast array of recreational resources, such as rivers, lakes, wildernesses, and scenic byways. The major rivers within Trinity County are the Trinity River, South Fork Trinity River, North Fork Trinity River, New River, Mad River, and Eel River. These rivers provide recreational opportunities such as fishing, kayaking, rafting, recreational mining, and camping.

The Trinity River was designated as a National Wild and Scenic River in 1981 by the Secretary of the Interior. The designated reach extends from Lewiston Dam downstream to Weitchpec. Three tributaries to the Trinity River are also designated as Wild and Scenic Rivers: the New River and the South and North Forks of the Trinity River. These tributaries enter the Trinity River downstream of the project boundary.

The TRD includes three impoundments in Trinity County: Buckhorn Reservoir, Trinity Lake and Lewiston Reservoir. These lakes provide recreational opportunities such as boating, fishing, and camping. Trinity Lake is situated in the northeast section of Trinity County and has a surface area of approximately 16,400 acres. Lewiston Reservoir is immediately downstream of Trinity Dam and is operated as a re-regulation facility that provides water to Whiskeytown Reservoir.

There is one congressionally designated wilderness area in close proximity to the TRD. The Salmon-Trinity Alps provides recreational opportunities such as hiking, backpacking, horse packing, hunting, and angling. Located in the northern part of Trinity County, it is the primary watershed for the Trinity River.

Two scenic byways cross Trinity County: the Trinity Heritage Scenic Byway (SR 3) and the Trinity Scenic Byway. These byways provide a scenic travel route through Trinity County for residents and visitors. The Trinity Heritage Scenic Byway includes 120 miles of road beginning south of Hayfork and continuing north past Trinity Lake to Edgewood at Interstate 5 (I-5). The Trinity Scenic Byway follows SR 299 between Redding and Arcata, California. This byway is approximately 140 miles long and bisects Trinity County as it parallels the Trinity River.

The federal government manages about 72 percent of the land in Trinity County. BLM is the primary land manager for public lands between Lewiston Dam and the confluence of the North Fork Trinity River and the mainstem Trinity River. The STNF manages the majority of federal land between the confluence of the North Fork Trinity River and the mainstem Trinity River and the confluence of the New River and the Trinity River. Six Rivers National Forest manages federal lands located between the New River and

the Hoopa Valley Indian Reservation. The HVT manages lands within the Hoopa Valley Indian Reservation.

The Trinity River provides year-around recreation opportunities. These opportunities include boating, kayaking, canoeing, rafting, inner-tubing, fishing, swimming, wading, camping, gold panning, nature study, picnicking, hiking, and sightseeing. Fishing for Chinook salmon, steelhead, and rainbow and brown trout are major recreational activities on the Trinity River throughout the year. With the development and implementation of the TRRP, the type, location, and timing of recreational activities continues to evolve.

Developed recreation areas along the Trinity River consist of private campgrounds, resorts, and lodges; public campgrounds and picnic areas; and fishing access sites. Approximately 35 developed recreation sites are located along the Trinity River corridor. More than 200 river access sites were inventoried in 1979 between Lewiston Dam and Weitchepac. Expanded whitewater recreation, in conjunction with post ROD flows has increased the use of these recreation sites (Duane Miller, BLM. pers. com. 2006)

Local Setting

There is a variety of residential subdivisions, commercial enterprises and public facilities along the river corridor. Within the vicinity of the project boundary are residential developments, some degree of commercial development (e.g., Indian Creek Lodge, Douglas City convenience store and gas station, Indian Creek Trailer/RV Park) and public facilities (e.g., Douglas City Elementary School, Douglas City Volunteer Fire Department and Weaverville Community Service Water District). Much of the private land in this region was subdivided in the early 1970s, and the residential development has occurred over time. Lands within and adjacent to the project boundary continue to be developed because of the availability of developable lands in close proximity to SR 299, within easy commuting distance of Weaverville. Factors contributing to this growth have included availability of private land on relatively level floodplains now somewhat protected from flooding by the dams, County zoning practices, abundant water from the river, and the attractive recreational/environmental setting.

Despite the presence of roads and development, public river access opportunities are somewhat limited in the vicinity of the project boundary. Currently, there are two developed river access points, six undeveloped river access points, and two privately owned recreation facilities located between Douglas City and Steel Bridge Road. Table 3.8-1 provides a summary of these sites, and Figure 3.8-1 shows recreation areas in the general vicinity of the project boundary. These recreation areas provide a variety of recreation opportunities such as fishing, whitewater rafting, picnicking, and wildlife viewing.

As the manager of public lands along the Trinity River corridor between Lewiston and Helena, BLM is responsible for monitoring recreation visitor use within the Trinity River Special Recreation Management Area. Monitoring data indicate approximately 80,000 Recreational Visitor Days (RVDs) were spent on Trinity River recreation in 2005. Of these RVDs, the Douglas City Campground, Steel Bridge Campground, and Steel Bridge River Access received approximately 15 percent of this use. Recent

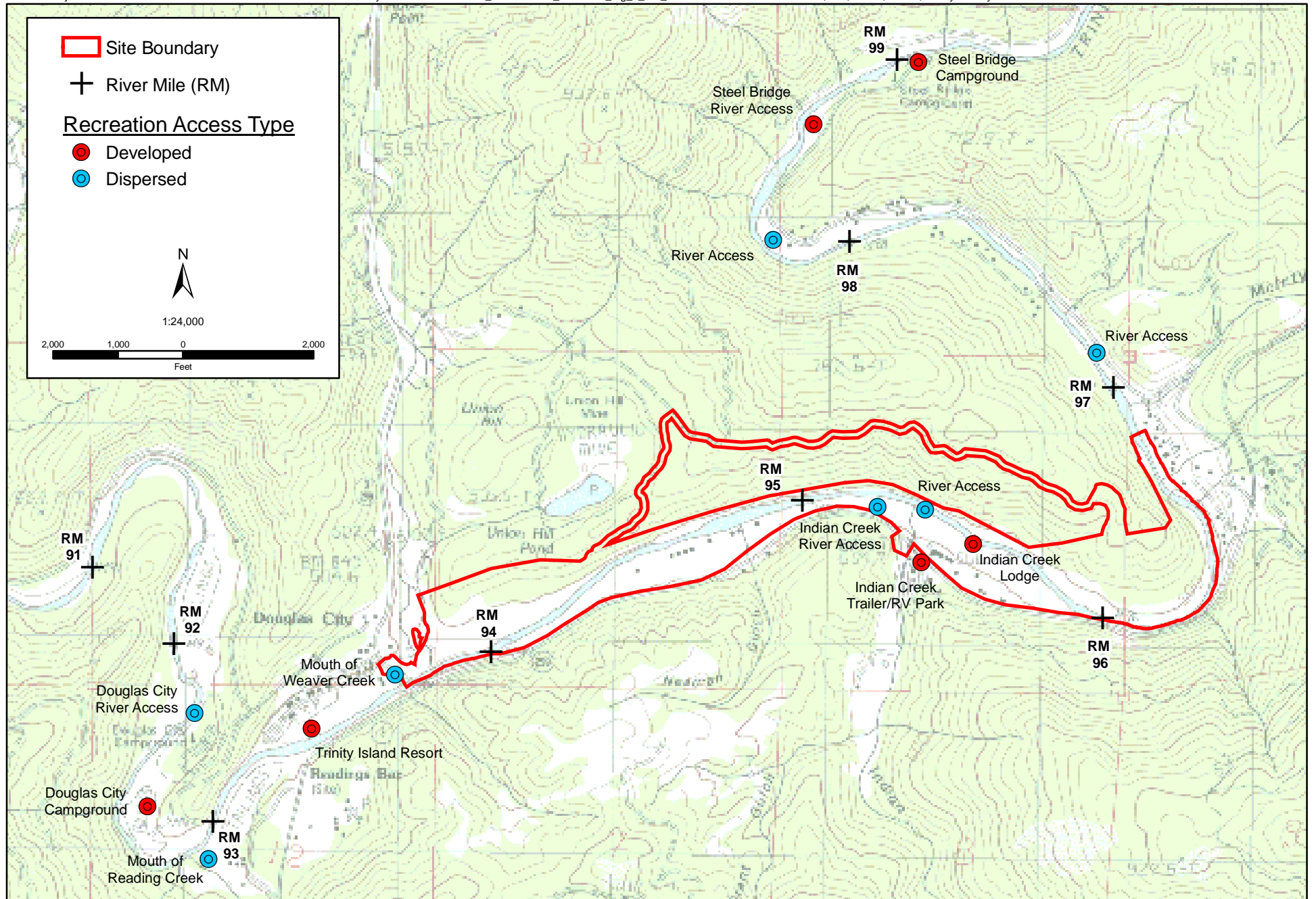


Figure 3.8-1
Recreation Areas

estimates of recreational use of the Trinity River and Trinity Lake suggest that \$13 million is spent by recreational users in Trinity County, with non-county residents accounting for about 75 percent of this total.

TABLE 3.8-1
RECREATION WITHIN THE VICINITY OF THE INDIAN CREEK REHABILITATION SITE

Developed Recreation	
Douglas City Campground	BLM-managed campsite that provides overnight and day-use facilities, river access sites and a primitive boat launch site.
Indian Creek Trailer and RV Park	Privately owned facility that provides overnight and day-use camp and RV accommodations.
Indian Creek Lodge	Privately owned facility that provides overnight and day-use lodging accommodations.
Steel Bridge Campground and river access site	BLM-managed campsite that provides overnight and day-use facilities, river access sites and a primitive boat launch site.
Dispersed Recreation	
River access sites	There are five undeveloped river access sites located along the Trinity river between Douglas City and Steel Bridge Road. These sites are situated on either private or public land and provide river access for fishing and primitive boat launch sites for rafts, canoes, kayaks and other watercraft that can be carried to the river's edge.

3.8.2 RELEVANT PLANS AND POLICIES

Federal

Wild and Scenic Rivers Act

Congress enacted the National WSRA in 1968 in an effort to protect free-flowing rivers with “outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values.” The entire mainstem of the Trinity River was designated as a National Wild and Scenic River by the Secretary of the Interior in 1981, primarily because of the river’s anadromous fishery. Approximately 97.5 miles of the river are also classified as recreational under the National WSRA. BLM is the river management agency from Lewiston to Helena, and the STNF is the river management agency from Helena to the boundary of the Hoopa Valley Indian Reservation. The BLM classifies the mainstem Trinity River from 100 yards below Lewiston Dam, downstream of the project boundary to Cedar Flat (an area located approximately 30 miles west of the project boundary), as recreational. The BLM’s management objectives are to:

- enhance recreation opportunities related to use of the Trinity River, including mineral collection;
- maintain scenic quality along the river corridor; and
- protect and enhance the anadromous fisheries of the Trinity River.

The federal WSRA designates qualifying free-flowing river segments as wild, scenic, or recreational. The WSRA establishes requirements applicable to water resource projects affecting wild, scenic, or recreational rivers within the National Wild and Scenic Rivers System, as well as rivers designated on the

National Rivers Inventory. Under the WSRA, a federal agency may not assist in the construction of a water resources project that would have a direct and adverse impact on the free-flowing, scenic, and natural values of a wild or scenic river. If the project would affect the free-flowing characteristics of a designated river or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area, such activities should be undertaken in a manner that would minimize adverse impacts and should be developed in consultation with the administering agency. The Trinity River was designated a Wild and Scenic River due in part to its “outstandingly remarkable resource,” the fishery (P.L. 90-542). Consultation required under Section 7 of the WSRA was prepared to specifically address requirements under the federal WSRA and is provided as Appendix D.

State

Wild and Scenic Rivers Act

Under the California WSRA, the segment of the Trinity River that encompasses the Proposed Action is designated as “scenic” and “recreational.” These classifications were designated in 1980, a year prior to the federal designation. The Public Resources Code (5093.53[b]) defines “scenic rivers” as being “those rivers or segments of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.” “Recreational rivers” are defined in the Public Resources Code (5093.53[c]) as being “those rivers or segments of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past. There are no permits required under the State WSRA.

Local

Trinity County General Plan Goals and Objectives

The Trinity County General Plan contains goals and policies designed to guide the future physical development of the County, based on current conditions. The General Plan contains all of the state-required elements, including community development and design, transportation, natural resources, health and safety, noise, housing, economic development, public facilities and services, air quality, and recreation. The following goals and policies related to recreation issues associated with the project were taken from the applicable elements of the General Plan (Trinity County 2001), including the Douglas City Community Plan (Trinity County 1987).

County Wide Goals and Objectives

General Plan Goals

1. To retain the mountain beauty, the vast wilderness areas and the open character of Trinity County
2. To provide additional facilities for camping, picnicking, boating, and sightseeing, both public and private
3. To encourage recreation as the primary economic resource of the County

Land Use Element Goals

Cultural

Retain the rural character of Trinity County by:

- Encouraging uses that fit with the land
- Considering the “rights” of the individual when making decisions as well as the “rights” of the community
- Seeking information and cooperation from state and federal agencies within Trinity County

Economic

Maintain and enhance a viable economic base for Trinity County by:

- Encouraging tourism

Douglas City Community Plan Goals and Objectives

The Douglas City Community Plan covers approximately 35 square miles (22,400 acres) centered on the Trinity River from Grass Valley Creek to an area known as Steiner Flat, downstream of Douglas City.

Parks and Recreation

Goal: To provide for access to the Trinity River in a manner that recognizes and respects the rights of existing developments.

The objectives consistent with this goal are:

- Develop a River Access Plan which relies predominantly upon public lands for access to and along the Trinity River
- Insure that future access areas or sites are designed and located so as to avoid potential conflicts with private development.

Goal: To insure that recreational use of the Trinity River does not result in degradation of this valuable resource.

Objectives incorporated into the Plan consistent with this goal are:

- Utilize the BLM's quarter mile corridor boundary on the Trinity River to review projects for their potential impact on recreational use of the Trinity River.

Trinity County Subdivision Ordinance

The Trinity County Subdivision Ordinance, Section 16.08.130, identifies the Trinity River below Lewiston Dam as a “Public Waterway.” This ordinance requires “reasonable public access” for subdivisions on public waterways if no existing reasonable public access exists, as determined by the Planning Commission or Board of Supervisors. Reasonable public access includes access to or along a river, stream, or reservoir by highway, foot trail, bike trail, horse trail, or other means. In determining

what constitutes “reasonable public access,” many factors are considered, including the type of riverbank; the various appropriate recreational, educational, and scientific uses that are possible; the likelihood of trespass on private property and reasonable means of avoiding such trespass; public safety; and other such information.

“Reasonable public access” on a public waterway pursuant to the Trinity County Subdivision Ordinance and the California Subdivision Map Act is not required for the project.

Project Consistency with the Trinity County General Plan and Community Plans

This section compares the goals and objectives of the Proposed Action to the relevant local planning policies (i.e., Trinity County General Plan and Douglas City Community Plan) to determine if there are any inconsistencies.

The goals and objectives described in Chapter 1 are generally compatible with the applicable General Plan goals and policies summarized above. The overall goal of the Proposed Action is to rehabilitate the site so that it functions in a manner that is closer to historic conditions (e.g., pre-Lewiston Dam). Although there will be excavation of alluvial materials within and adjacent to the Trinity River that would result in temporary and short-term interruption of public and private access to the river within the project boundary, the project would be temporary and will include mitigation measures intended to reduce impacts to recreational values during project implementation.

In the long-term, opening of the floodplain may allow for increased public use of the river within the project boundary, particularly for in-river recreation.

3.8.3 ENVIRONMENTAL CONSEQUENCES/IMPACTS AND MITIGATION MEASURES

Methodology

The analysis consists of identifying recreational resources (parks and recreation facilities) in or near the project boundary and determining whether implementation of the Proposed Action would have an impact on these resources. This analysis is a qualitative assessment of the impacts to potential recreational uses associated with this segment of the Trinity River.

In addition to evaluating the impacts on recreation opportunities, the project was evaluated for consistency with Trinity County recreation objectives and both State and Federal Wild and Scenic River designations. The WSRA Section 7 Determination for the Indian Creek Rehabilitation Project is included as Appendix D.

Significance Criteria

Impacts associated with recreational uses are considered significant if the project would:

- conflict with established or planned recreational uses within the project boundary;
- substantially affect existing recreational opportunities; or

- result in an increase in the use of the existing neighborhood, regional parks, public lands in general, or other recreational facilities such that substantial deterioration of these facilities would occur or be accelerated.

The following criteria were also used to determine significant impacts to riverine recreation:

- substantial increase in turbidity so as to negatively affect recreation aesthetics;
- incompatibility with the Federal or State Wild and Scenic River designation, defined as jeopardizing the river's anadromous fishery resources or scenic and recreational qualities; or
- non-compliance with Trinity County recreation resource objectives.

Impacts and Mitigation Measures

Table 3.8-2 summarizes the potential recreation impacts resulting from implementation of the project.

TABLE 3.8-2

SUMMARY OF RECREATION IMPACTS FOR THE NO-PROJECT ALTERNATIVE, PROPOSED ACTION, ALTERNATIVE 1, AND ALTERNATIVE 2

No-Action Alternative	Proposed Action	Alternative 1	Alternative 2	Proposed Action with Mitigation	Alternative 1 with Mitigation	Alternative 2 with Mitigation
3.8-1. Construction associated with the project could disrupt recreation activities in the Trinity River.						
NI	S	S	S	LS	LS	LS
3.8-2. Construction of the project could result in an increased safety risk to recreational users.						
NI	S	S	S	LS	LS	LS
3.8-3. Construction associated with the project could lower the river's aesthetic value for recreationists by increasing turbidity levels in the Trinity River.						
NI	S	S	S	LS	LS	LS
3.8-4. Implementation of the project could affect Wild and Scenic River Values.						
NI	LS	LS	LS	N/A ¹	N/A ¹	N/A ¹

Notes:

LS = Less than Significant

S = Significant

SU = Significant Unavoidable

NI = No Impact

B = Beneficial

N/A = Not Applicable

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.8-1: Construction associated with the project could disrupt recreation activities (boating, fishing, and swimming) in the Trinity River. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, there would be no disruption to boating, fishing, and swimming activities within the Trinity River because construction would not occur.

Proposed Action, Alternative 1, and Alternative 2

As previously discussed, the Trinity River supports in-stream recreational uses, primarily whitewater recreation and fishing. These in-stream recreational activities take place throughout the year, but are more prevalent between the months of April and December. Access to the Trinity River is available on public and private lands, including undeveloped foot paths and improved access points. Some of these access points prohibit public use. Public access is provided on lands owned by Trinity County and BLM lands. Where available, access to the river provides a variety of water-based recreational activities (e.g., boating, fishing, swimming).

During implementation of either the Proposed Action, Alternative 1, or Alternative 2, there would be construction equipment and activity within the floodplain and immediately adjacent to the river bank. Actions within the activity areas described in Chapter 2 may result in short-term interruptions to public access. However, river access will remain available at the Douglas City Campground and the Steel Bridge Campground along with several public and private access points to the east and west of these facilities. These facilities will ensure uninterrupted public access to the river on both sides of the project boundary. This impact is considered significant, even though potential disruptions to recreational activities within the project boundary would be temporary.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A

Proposed Action, Alternative 1, and Alternative 2

- 1a.** Reclamation or their contractor shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundary along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at the Steel Bridge and Indian Creek Boat launches, as well as at the private boat launch behind the Indian Creek Motel. Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local Trinity Journal newspaper and posted on the bulletin board maintained by the TRRP in Weaverville, California at least two weeks prior to the start of construction activities.

Significance after Mitigation: Less than Significant

Impact 3.8-2: Construction of the project could result in an increased safety risk to recreational users.
No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2

No-Action Alternative

Under the No-Action Alternative, there would be no safety risks to recreational users because construction would not occur.

Proposed Action

During construction of the Proposed Action, there would be heavy equipment activity and construction vehicle traffic directly adjacent to the Trinity River. Excavation activities associated with treatment area R-5 would require construction work within the river channel for a short period of time (approximately 1 week). The river crossing required for treatment area R-1 is expected to be in place for up to 4 weeks during the low flow period. This crossing would require the placement of gravel access pads within the river channel. These construction-related activities could distract recreational users (e.g., boaters, anglers) for a short period of time (approximately 3-6 weeks during the low flow period). The in-channel activities associated with treatment area R-5 would be accomplished in a way that minimizes impacts to navigation (i.e., safety) but this would still be considered a significant impact, albeit temporary.

Alternative 1

Potential safety risks to recreational users from construction and operation under Alternative 1 are similar to those under the Proposed Action, although Alternative 1 would not require installation of the river crossings which would therefore result in less in-channel access. However, this impact would still be considered significant as there would be in-channel work associated with treatment area R-5.

Alternative 2

Potential safety risks to recreational users from construction and operation under Alternative 2 are similar to those under the Proposed Action and Alternative 1, although Alternative 2 would require less construction time and less in-channel access because this alternative would not involve the implementation of activity areas R-1, U-1, U-2 and the Trinity River crossing near Indian Creek. Therefore, there would be less work adjacent to and within the Trinity River associated with Alternative 2. However, this impact would still be considered significant as there would be in-channel activities associated with Weaver Creek crossing and with activity area R-5.

*Mitigation Measures**No-Action Alternative*

Since no significant impact was identified, no mitigation is required.

*Significance after Mitigation: N/A**Proposed Action, Alternative 1, and Alternative 2*

2a. Please see mitigation measure 1a above.

Significance after Mitigation: Less than Significant.

Impact 3.8-3: Construction activities associated with the project could lower the Trinity River's aesthetic values for recreationists by increasing turbidity levels in the Trinity River. *No Impact for the No-Action Alternative; Significant Impact for the Proposed Action, Alternative 1, and Alternative 2*

No-Action Alternative

Under the No-Action Alternative, turbidity levels in the Trinity River would not increase because construction would not occur.

Proposed Action and Alternative 1

The Proposed Action could increase turbidity in the Trinity River for some distance downstream. The level of this increase is largely dependent on the flow regime at the time of the discharge. The flows that typically attributed to good fishing tend to be clear and nominal increases in turbidity may affect the recreational experience of anglers and the aesthetic values of other user groups. Water quality objectives for the Trinity River specifically prohibit increases in the levels of other materials in a way that causes nuisance or adversely affects beneficial uses (i.e., recreation).

The Basin Plan includes two specific prohibitions directed at construction, logging, and other associated non-point source activities:

- The discharge of soil, silt, bark, sawdust or other organic and earthen material from any logging, construction or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife or other beneficial uses is prohibited.
- The placing or disposal of soil, silt, bark, slash or sawdust or other organic and earthen material from any logging, construction or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities deleterious to fish, wildlife or other beneficial uses is prohibited.

Implementing either the Proposed Action or Alternative 1 has the potential to increase turbidity and total suspended solids during construction activities. Fine sediments may be suspended in the river for several hours following excavation activities. The extent of downstream sedimentation would be a function of the instream flow velocity and particle size. For example, fine-grained sediments like silts and clays can be carried several thousand feet downstream of the excavation areas, while larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction limit. Increased turbidity and suspended solids levels would adversely affect water quality (refer to Section 3.5, Water Quality) and could also adversely affect anadromous fish species that are known to occur in the Trinity River (refer to Section 3.6, Fisheries Resources). This would therefore be considered a significant impact.

Alternative 2

Potential increases in turbidity levels in the Trinity River associated with construction of Alternative 2 would be less than under the Proposed Action or Alternative 1. Similar to the Proposed Action and Alternative 1, construction activities associated with Alternative 2 would temporarily result in turbidity

within and downstream of the activity areas. However, Alternative 2 would result in less disturbed area and substantially less volume in terms of material excavated within the river channel. Although the area and volume of material excavated from the river channel that would be affected under Alternative 2 are less than under the Proposed Action and Alternative 1, fine sediments may be suspended in the river for several hours following excavation activities. This would therefore be considered a significant impact.

Mitigation Measures

No-Action Alternative

Since no significant impact was identified, no mitigation is required.

Significance after Mitigation: N/A

Proposed Action, Alternative 1, and Alternative 2

- 3a.** Turbidity increases associated with project construction activities shall not exceed the Regional Water Board water quality objectives for turbidity in the Trinity River basin. Turbidity levels are defined in nephelometric turbidity units (NTUs). The current threshold for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (2001), is summarized below.
- Turbidity shall not be increased by more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.
- 3b.** To ensure that turbidity levels do not exceed the threshold listed above during river's edge and in-channel project construction activities, Reclamation or its contractor shall monitor turbidity levels 50 feet upstream and 500 feet downstream of the point of river's edge and in-channel construction activities. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every 2 hours during periods of increased turbidity.
- 3c.** Reclamation or its contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that describes BMPs for the project. Ripping of all riparian areas is expected to stop delivery of storm water to the river; however, BMPs, including silt fences, sediment filters, dewatering activities, and routine monitoring to verify effectiveness, may be necessary. Proper implementation of erosion and sediment controls and dewatering activities shall be adequate to minimize sediment inputs into the Trinity River until river levels rise and inundate the floodplain. All sediment containment devices and erosion control devices will be inspected daily during the construction period to ensure that the devices are functioning properly. Excavated and stored materials will be kept in upland sites with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland sites. All applicable erosion control standards will be required during stockpiling of materials.

Significance after Mitigation: Less than Significant.

Impact 3.8-4: Implementation of the project could affect Wild and Scenic River values. ***No Impact for the No-Action Alternative; Less-than-Significant Impact for the Proposed Action, Alternative 1, and Alternative 2***

No-Action Alternative

Under the No-Action Alternative, there would be no adverse impacts to Wild and Scenic River values because construction would not occur.

Proposed Action, Alternative 1, and Alternative 2

Construction and implementation of the Proposed Action, Alternative 1 or Alternative 2 would have a temporary impact on the scenic and recreational components of the Trinity River's Wild and Scenic River values. However, the impact on scenic values would be less than significant because the rehabilitation activities would enhance the overall form and function of the Trinity River, thereby enhancing the outstandingly remarkable values for which it was designated a Wild and Scenic River. Temporary impacts on the scenic quality of the river are also discussed above under Impact 3.8-3 and in Section 3.14, Aesthetics.

The impact on recreational values would also be less than significant because access to the river would be available from areas adjacent to the project boundary. Temporary impacts on recreation are also discussed above under Impacts 3.8-1 and 3.8-2.

Mitigation Measures

No-Action Alternative, Proposed Action, Alternative 1, and Alternative 2

Since no significant impact was identified for these alternatives, no mitigation is required.

Significance after Mitigation: N/A.